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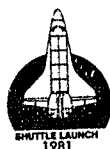
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Mr. William E. Edeline
P.O. Box 789
Barstow, CA 92311

Wallops Flight Center
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Foreword



Pocket Statistics is published annually for the use of NASA managers and their immediate staffs. Included is a summary of the NASA Program goals and objectives, major mission performance, USSR spaceflight; summary comparisons of the USA and USSR space records, and selected technical, financial, and manpower data.

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SECTION C

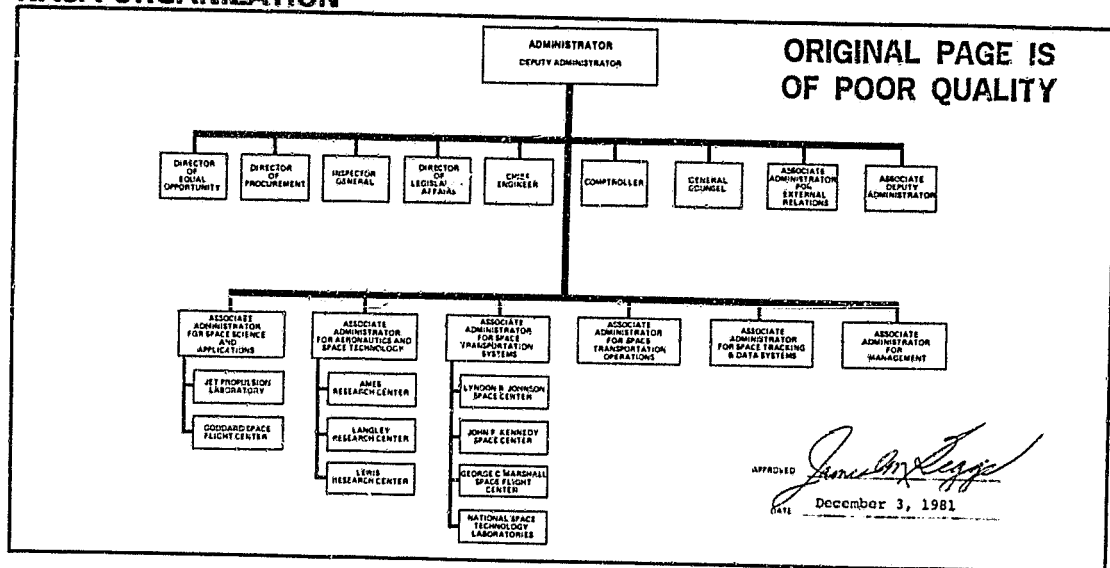
Section A

U. S. Space Policy & Program Goals

NASA ORGANIZATION

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APPROVED *James H. Egge*
DATE December 3, 1981

National Aeronautics And Space Act Of 1958

The Declaration of Policy and Purpose of the National Aeronautics and Space Act is outlined in Section 102 (a) through (e) of PL 85-568 as follows:

Sec. 102. (a) The Congress hereby declares that it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind.

(b) The Congress declares that the general welfare and security of the United States require that adequate provision be made for aeronautical and space activities. The Congress further declares that such activities shall be the responsibility of, and shall be directed by, a civilian agency exercising control over aeronautical and space activities sponsored by the United States, except that activities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States (including the research and development necessary to make effective provision for the defense of the United States) shall be the responsibility of, and shall be directed by, the Department of Defense; and that determination as to which such agency has responsibility for and direction of any such activity shall be made by the President in conformity with section 201 (a).

(c) The aeronautical and space activities of the United States shall be conducted so as to contribute materially to one or more of the following objectives:

(1) The expansion of human knowledge of phenomena in the atmosphere and space;

(2) The improvement of the usefulness, performance, speed, safety, and efficiency of aeronautical and space vehicles;

(3) The development and operation of vehicles capable of carrying instruments, equipment, supplies, and living organisms through space;

(4) The establishment of long-range studies of the potential benefits to be gained from the opportunities for, and the problems involved in the utilization of aeronautical and space activities for peaceful and scientific purposes;

(5) The preservation of the role of the United States as a leader in aeronautical and space science and technology and in the application thereof to the conduct of peaceful activities within and outside the atmosphere;

(6) The making available to agencies directly concerned with national defense of discoveries that have military value or significance, and the furnishing by such agencies, to the civilian agency established to direct and control nonmilitary aeronautical and space activities, of information as to discoveries which have value or significance to that agency;

(7) Cooperation by the United States with other nations and groups of nations in work done pursuant to this Act and in the peaceful application of the results thereof; and

(8) The most effective utilization of the scientific and engineering resources of the United States, with close cooperation among all interested agencies of the United States in order to avoid unnecessary duplication of effort, facilities, and equipment.

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NASA GOALS

National aerospace goals, established by the President and the Congress, are directly reflected in the NASA aerospace missions, and in the principal programs identified in its budget submission. The national aerospace goals (U.S. Civil Space Policy) for the next decade are as follows:

- Emphasize space applications that will bring important benefits to our understanding of Earth resources, climate, weather, pollution and agriculture, and provide for the private sector to take an increasing responsibility in remote sensing and other applications.
- Emphasize space science and exploration in a manner that retains the challenge and excitement and permits the nation to retain the vitality of its space technology base, yet provides short-term flexibility to impose fiscal constraints when conditions warrant.
- Take advantage of the flexibility of the space shuttle to reduce the cost of operating space over the next two decades to meet national needs.
- Increase benefits for resources expended through better integration and technology transfer among the national space programs and through more joint projects when appropriate, thereby increasing the return on the 100 billion investment in space to the benefit of the American people.
- Assure American scientific and technological leadership in space for the security and welfare of the nation and continue R&D necessary to provide the basis for later programmatic decisions.
- Demonstrate advanced technological capabilities in open and imaginative ways having benefit for developing as well as developed countries.
- Foster space cooperation with nations by conducting joint programs.
- Confirm our support of the continued development of a legal regime for space that will assure its safe and peaceful use for the benefit of mankind.
- Continue to pursue the improvement of the usefulness, performance, speed, safety and efficiency of aeronautical and space vehicles as authorized in the Space Act of 1958.

International Programs

International Cooperation Scope, Objectives, and Guidelines

- **SCOPE:** Pursuant to the National Aeronautics and Space Act of 1958, NASA has developed an extensive program of international cooperation which has opened the entire range of its space activities to foreign participation. Cooperative programs and activities involving nations and groups of nations are established by (1) agency to agency memoranda of understanding (MOUs), (2) agency to agency letter agreements, or (3) more formal intergovernmental agreements. The relative complexity, cost, and duration of the program or project dictate in part the type of arrangement used to establish the cooperative effort. NASA's international activities demonstrate the many peaceful purposes and applications of space science and technology and provide opportunities for contribution by scientists and agencies of other countries to the tasks of increasing human understanding and use of the spatial environment. Cooperation also supports operating requirements for the launch and observation of spacecraft.
- **OBJECTIVES:** Cooperation by the United States (US) with other nations contributes to the US aeronautical and space research program and to broader national objectives by:
 - Stimulating scientific and technical contributions from abroad
 - Enlarging the potential for the development of the state of the art
 - Providing access to foreign areas of geographic significance for measurements of space flights
 - Enhancing satellite experiments by foreign ground-support programs
 - Developing cost-sharing and complementary space programs
 - Extending ties among scientific and national communities
 - Supporting US foreign relations and foreign policy

- **GUIDELINES:** NASA's international activities follow guidelines which recognize the interests of the US and foreign scientists, establish a basis for sound programs of mutual value, and contribute substantively to the objectives of international cooperation. These guidelines provide for:
 - Designation by each participating government of a central civilian agency for the negotiation and supervision of joint efforts
 - Conduct of projects and activities having scientific validity and mutual interest
 - Agreement upon specific projects rather than generalized programs
 - Acceptance of financial responsibility by each participating agency for its own contributions to joint projects
 - Provision for the widest and most practicable dissemination of the results of cooperative activities

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International Programs Summary

	Number Countries/ International Organizations	Number Projects/ Investigations/Actions Completed or in Progress As of January 1, 1982	Number Countries/ International Organizations	Number Projects/ Investigations/Actions Completed or in Progress As of January 1, 1982
COOPERATIVE ARRANGEMENTS				
Cooperatively Spacecraft Projects	8	37		
Experiments on NASA Missions				
Experiments with Foreign Principal Investigators	13	70		
U.S. Experiments with Foreign Co- investigators or Team Members	10	55		
Cooperative Sounding Rocket Projects	3	6		
Joint Development Projects	22	1,754		
Cooperative Ground-Based Projects	4	7		
Remote Sensing	53	163		
Communication Satellite	51 (37)*	16		
Meteorological Satellite	44 (122)**	11		
Geodynamics	43	17		
Space Plasma	38	5		
Atmospheric Study	14	11		
Support of Manned Space Flights	21	2		
Solar System Exploration	8	9		
Astronomy & Astrophysics	25	10		
Cooperative Balloon and Airborne Projects				
Balloon Flights	8	12		
Airborne Observations	12	17		
International Solar Energy Projects	24	9		
Cooperative Aeronautical Projects	5	37		
Scientific & Technical Information Exchanges	70	3		
REIMBURSABLE LAUNCHINGS				
Launchings of Non-US Spacecraft			12	56
Foreign Launchings of NASA Spacecraft			1	4
TRACKING & DATA ACQUISITION				
NASA Overseas Tracking Stations/ Facilities			20	48
NASA Funded S&O Optical & Laser Tracking Facilities			15	20
Reimbursable Tracking Arrangements				
Support Provided by NASA			5	46
Support Received by NASA			3	12
PERSONNEL EXCHANGES				
Resident Research Associatehips			45	1,223
International Fellowships			21	328
Technical Training			12	987
Foreign Visitors			126	78,332

*ALUSAT Demonstrations
**APT Stations

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A-7

SPACE TRANSPORTATION SYSTEMS

Goals and Objectives

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- The operation of Space Transportation System will open a new era in space exploration and utilization for U.S. Government agencies, commercial firms, and foreign groups.
- Firm commitments exist for 28 operational Shuttle flights during 1982-85 representing 20 different users.
- Operational traffic forecast calls for 216 flights over a 17-year period.
- Operating costs will be recovered by NASA.
- NASA payloads will account for 40% of the operational missions, DOD for 27%, and others, including commercial and foreign users, 33%.
- Two Shuttle launch sites - Kennedy Space Center (three-fourths of flights) and, beginning in 1984, Vandenberg AFB.

- Office of Space Transportation Operations will:
 - Develop financial plans and pricing structures.
 - Provide all necessary services to potential users.
 - Manage expendable launch vehicles during transition to a fully operational fleet of orbiters.
- Office of Space Transportation Systems will:
 - Manage ground and flight testing until achievement of operational status.
 - Upgrade design and develop system improvements during operational period.

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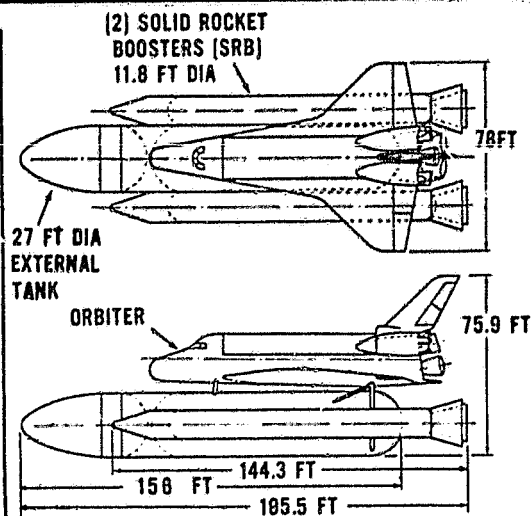
SPACE TRANSPORTATION SYSTEMS

FLIGHT INTRODUCTION - The Space Shuttle will be a manned reusable vehicle. The Shuttle will consist of a reusable orbiter, mounted piggyback at launch on a large expendable liquid propellant tank and two recoverable, and reusable solid propellant rocket boosters. At launch, the two solid rockets and the orbiter's three liquid rocket engines will ignite and burn simultaneously. At an altitude of about 25 statute miles, the spent solid rocket will be detached and parachuted into the ocean for recovery and reuse. The orbiter and its propellant tank will continue ascent. After main engine cutoff, the expendable propellant tank will be jettisoned and impact into a remote ocean area. The orbiter with its crew and payload will remain in orbit to carry out its mission, normally for about 7 days. When the mission is completed, the orbiter will return to Earth and land like an airplane.

MISSION AND OPERATIONAL PLANNING - The Shuttle will carry into space virtually all of the nation's civilian and military payloads as well as many international, civilian and government payloads. These include science and applications payloads for private industry, universities, and research organizations.

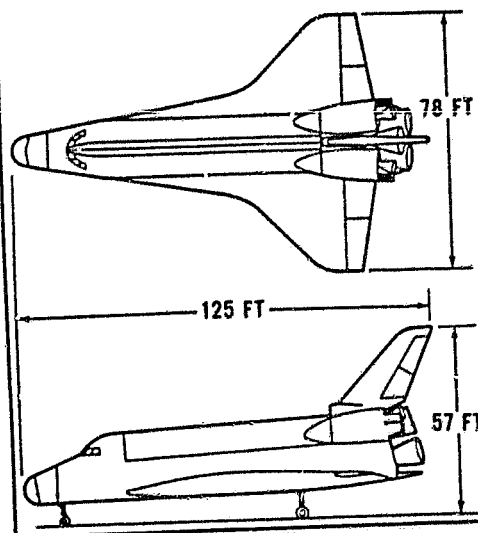
In addition to the first Space Shuttle Orbiter, the Columbia, three other orbiters will comprise the Space Shuttle fleet. These are the Challenger with its first flight scheduled for November 1982, The Discovery scheduled to fly in December 1983, and the Atlantis which will make its maiden flight in March 1985.

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SPACE TRANSPORTATION SYSTEMS



PROGRAM MANAGEMENT

Office of Space Transportation Systems is responsible for overall development, including establishment of overall performance requirements, research and development budget and resource requirements, program planning and the allocation and control of resources.

Office of Space Transportation Operations is responsible for the activities and logistics of operating the system for all users.

Johnson Space Center (JSC) is responsible for the day-to-day management of the program, establishing detailed performance requirements, overall systems integration, resource utilization and coordination of requirements, program scheduling, and configuration control.

Kennedy Space Center (KSC) is responsible for design of launch and recovery facilities, and will serve as the launch and landing site for the Space Shuttle development flights and for operational missions requiring launches in an easterly direction.

Marshall Space Flight Center (MSFC) is responsible for the development, production, and delivery of the orbiter main engine, the solid rocket booster, and the hydrogen-oxygen external propellant tank.

CHARACTERISTICS

- Orbiter and Booster launched vertically
- Orbiter - Reusable Delta winged manned vehicle
- Size - Same as a DC-9
- Crew - Commander, pilot, 1 mission specialist, 1 payload specialist - capacity 7
- Cargo Compartment - 15 ft dia, 60 ft long (carry loads up to 65,000 lbs)
- Launch and Reentry Speed - no more than 3 G

USES

- Launch most unmanned spacecraft
- Study space near and far
- Deploy scientific & applications satellites of all types
- Service and repair satellites
- Retrieve satellites from Earth orbit
- International cooperation
- Rescue missions
- Will replace most of the expendable launch vehicles currently used







Space Science And Applications Goals

LIFE SCIENCES	To uncover the medical problems of manned spaceflight and develop solutions or counter measures; to use the space environment for conducting experiments on the influence of gravity on biological processes; to understand the origin and distribution of extraterrestrial life in the universe.
ASTROPHYSICS	To use access to space to carry out measurements of celestial objects at wave-lengths and particle energies which cannot be measured from the ground and to conduct basic experiments making use of the unique space environment.
PLANETARY	To further our understanding of the origin and evolution of the solar system; to further our understanding of the origin and evolution of life; to further our understanding of Earth by comparative studies of the Moon and other planets; to further our understanding of near-Earth resources.
SPACELAB MISSION	To plan and conduct Spacelab and Orbiter-attached missions for NASA programs; to maintain strong interface between STS and NASA users; and to lead coordinated Science & Applications Space Platform activities.
SOLAR TERRESTRIAL	To understand the generation of energy in the Sun, its transformation into different forms and transport into interplanetary space, and its interaction with the Earth's magnetic field, and plasma and ionosphere environment; to understand the plasma processes which characterize the Earth's magneto- and ionosphere; to understand the Sun as a star.
REMOTE SENSING	Establishment of a space system to make global observations of Earth's atmosphere and land and water surfaces.
COMMUNICATIONS	Maintenance of U.S. leadership in satellite communications by developing and flight-proving wideband and narrow-band technology.
MATERIAL PROCESSING	Understanding gravitational effects on materials processing; applying this knowledge to enhance materials processing on Earth; and, exploitation of the space environment to produce unique, low-volume, high-value materials.
TECHNOLOGY TRANSFER	Assessment of national priorities and user needs which can benefit from demonstrations and transfer of space technologies to operational users.

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AERONAUTICS RESEARCH AND TECHNOLOGY GOALS

AERONAUTICAL TECHNOLOGY PROGRAMS

PROPULSION	 Turboprops	Source Noise & Pollution	Power Transmission	Alternative
AERODYNAMICS	Supercritical Airfoils	Drag Reduction	Lift Augmentation	Tilt Rotor  F-16 HIMAT  Maneuverability
STRUCTURES	Composite Materials	Crash-Worthy Structures 	High-Temperature Materials	Computer-Aided Design 
ELECTRONICS	Guidance & Navigation 	Digital Fly-by-Wire Displays	Terminal Operations	Integrated Controls All-Weather Day-Night Operations Active Controls

AERONAUTICAL TECHNOLOGY OBJECTIVES

	TECHNOLOGY FOR:	TIME	EFFECT
ENERGY	50% FUEL REDUCTION	1990	100 MILLION BBL/YR SAVINGS
POLLUTION	90% NO _x REDUCTION	1985	MEETS ALL CLEAN AIR RECOMMENDATIONS
PERFORMANCE	15% EFFICIENCY INCREASE	1990	REDUCED TRANSPORTATION COST
NOISE	MAXIMUM PRACTICAL IMPROVEMENT	CONTINUING	ELIMINATE ENVIRONMENTAL RESTRAINTS
SAFETY	MAXIMUM PRACTICAL IMPROVEMENT	CONTINUING	SAVE LIVES AND PROPERTY

Section B

Space Flight Activity

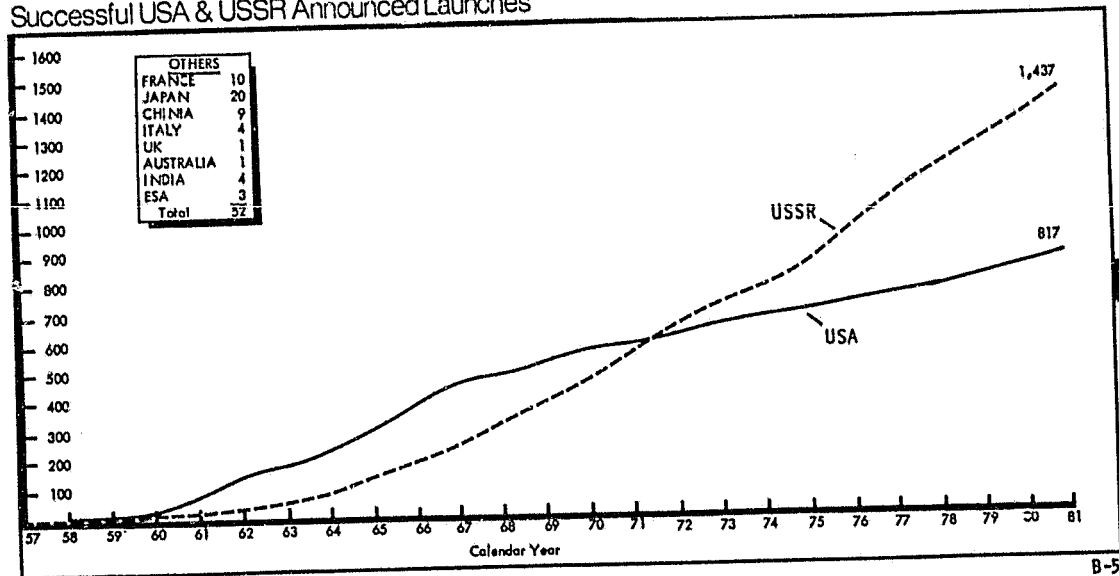
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Major Space "Firsts"

LAUNCH DATE	MISSION	EVENT DESCRIPTION	DATE	US	USSR	LAUNCH DATE	MISSION	EVENT DESCRIPTION	DATE	US	USSR
4 Oct 57	Sputnik 1	Man Made Earth Satellite	4 Oct 57		X	3 Mar 72	Pioneer 10	Jupiter Flyby	3 Dec 73	X	
3 Nov 57	Sputnik 2	Biosatellite	3 Nov 57		X	3 Nov 73	Mariner 10	Mercury Flyby	16 Mar 74	X	
1 Feb 58	Explorer	Discovered Radiation Belt (Van Allen)	1 Feb 58	X		8 Jun 75	Venus 9	Venus Orbit	22 Oct 75		X
2 Jan 59	Luna 1	Escaped Earth's Gravity	2 Jan 59		X	15 Jul 75	Apollo/Soyuz	Manned International Co-operative Mission - Rendezvous, Docking, and Transfer of Crews	17 Jul 75	X	X
17 Feb 59	Vanguard II	Earth Photo from Satellite	17 Feb 59	X							
12 Sep 59	Luna 2	Lunar Impact	14 Sep 59		X						
4 Oct 59	Luna 3	Lunar Picture (Dark Side)	7 Oct 59		X	20 Aug 75	Viking 1	Multiday Operation of Spacecraft on Surface of Another Planet	20 Jul 76	X	
1 Apr 60	TIR05 1	Weather Satellite	1 Apr 60	X		9 Sep 75	Viking 2	In-situ analysis of surface material and biological experiments conducted on another planet (Mars)	3 Sep 76	X	
13 Apr 60	Transit 1B	Navigation Satellite	13 Apr 60	X							
12 Aug 60	ECHO-1	Communications Satellite	12 Aug 60	X			Vikings 1 & 2		20 Jul 76	X	
19 Aug 60	Sputnik 5	Orbited Animals	20 Aug 60		X						
12 Apr 61	Vostok 1	Manned Orbital Flight	12 Apr 61		X						
26 Aug 62	Mariner 2	Interplanetary Probe - Venus Flyby	14 Dec 62	X		6 Apr 73	Pioneer 11	Saturn Flyby	Sep 79	X	
1 Nov 62	Mars 1	Mars Flyby	Jun 63		X	5 Sep 77	Voyager 1	High resolution photographs & measurements of Jupiter & Saturn	Mar 79	X	
16 Jun 63	Vostok 6	Female in Orbit	16 Jun 63		X	20 Aug 77	Voyager 2		Nov 80	X	
28 Nov 64	Mariner 4	Mars Flyby Pictures	15 Jul 65	X							
18 Nov 65	Venera 3	Venus Impact	1 Mar 66		X						
31 Jan 66	Luna 9	Lunar Soft Landing	3 Feb 66		X	12 Apr 81	S/S-1	Space Shuttle Flight	12 Apr 81	X	
16 Mar 66	Gemini 8	Manned Docking of Two Craft	16 Mar 66	X		17 Nov 81	STS-2	Re-use of Launch Vehicle	12 Nov 81	X	
31 Mar 66	Lunar 10	Lunar Orbiter	3 Apr 66		X						
17 Apr 67	Surveyor 3	Lunar Surface Sampler	20 Apr 67	X							
14 Sep 68	Zond 5	Circumlunar of Live Animals	21 Sep 68		X						
21 Dec 68	Apollo 8	Manned Lunar Orbit	24 Dec 68	X							
16 Jul 69	Apollo 11	Manned Lunar Landing	20 Jul 69	X							
16 Jul 69	Apollo 11	Lunar Soil Samples Returned	24 Jul 69	X							
17 Aug 70	Venera 7	Venus Soft Landing	15 Dec 70		X						
19 May 71	Mars 2	Mars Impact	27 Nov 71		X						
28 May 71	Mars 3	Mars Soft Landing	2 Dec 71		X						
30 May 71	Mariner 9	Mars Orbit	13 Nov 71	X							

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Successful USA & USSR Announced Launches



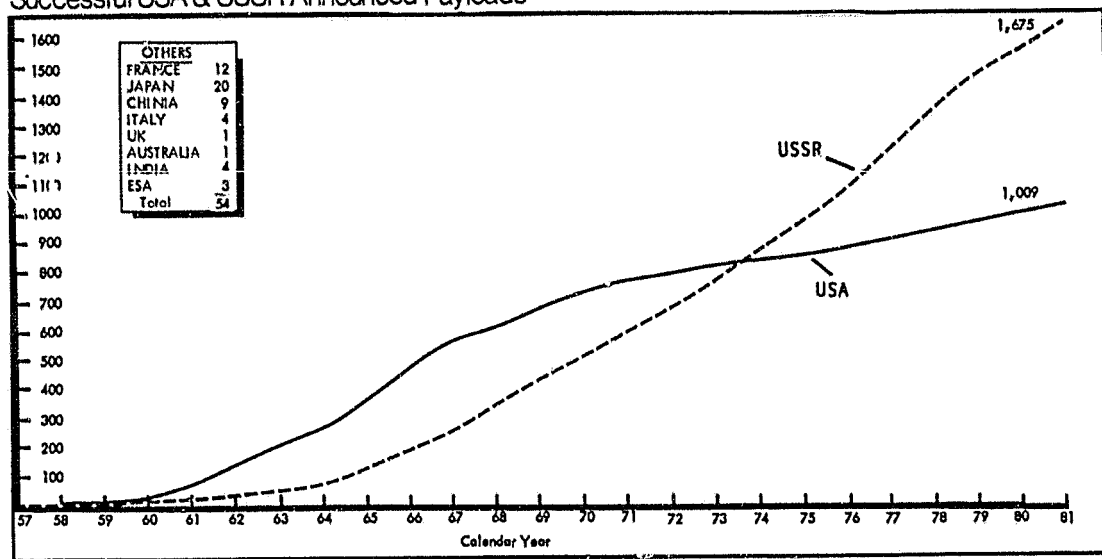
Summary Of USA & USSR Announced Payloads

Summary Of USA & USSR Announced Payloads																																
	Calendar Year				NUMBER OF SUCCESSFUL MISSIONS OR PAYLOADS																											
	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	Total						
NASA	0	0	6	7	15	17	19	23	22	19	17	13	11	5	7	9	8	3	11	2	3	8	3	1	4	228						
NASA/USA Gov't	0	0	0	0	0	0	2	1	1	4	3	3	1	1	1	2	2	1	3	3	7	1	3	3	4	41						
NASA/USA Commercial	0	0	0	0	0	1	1	0	1	0	3	1	2	2	2	2	1	3	3	4	8	7	1	2	5	41						
NASA/International	0	0	0	0	0	2	0	2	2	0	2	3	4	2	6	5	1	9	3	4	8	7	1	0	0	61						
TOTAL NASA	0	0	6	7	15	20	23	26	26	23	25	20	18	10	16	18	12	16	19	16	14	20	8	6	13	371						
Air Force	0	1	5	8	18	33	39	39	49	63	48	42	29	20	31	17	12	7	11	18	14	14	9	9	5	541						
Navy	0	1	0	3	7	7	10	11	15	4	12	1	10	1	0	0	0	1	0	0	0	0	0	0	0	83						
Army	0	3	0	1	0	0	0	0	4	3	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	14						
TOTAL DOD	0	5	5	12	25	40	49	50	68	70	61	43	40	22	31	17	12	8	11	18	14	14	9	9	5	638						
TOTAL USA SUCCESSFUL	0	5	13	21	40	60	62	76	94	93	86	63	58	32	47	35	24	24	30	34	28	34	17	15	18	1009						
TOTAL USSR	2	1	3	3	6	20	17	35	64	44	66	74	70	88	97	89	107	95	111	121	105	120	102	110	125	1675						
NUMBER OF UNSUCCESSFUL MISSIONS OR PAYLOADS (Not Included in numbers above)																																
NASA	0	4	6	8	9	7	2	5	5	7	2	3	3	3	1	0	0	1	1	0	0	0	0	0	0	67						
NASA/USA Gov't	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	3						
NASA/USA Commercial	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	1	0	2	0	0	0	0	7						
NASA/International	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4						
Total NASA Unsuccessful	0	4	6	8	9	7	2	5	5	8	3	3	4	4	2	0	1	2	2	0	3	0	1	1	0	81						
Total DOD Unsuccessful	1	8	4	8	7	6	8	5	4	3	2	1	0	0	0	0	0	0	0	0	2	0	4	1	69							
(If data to change as DOD payloads become unclassified)																																

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a/ Subject to change as DOD payloads become unclassified

Successful USA & USSR Announced Payloads



Summary Of United States Manned Space Flight

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MISSION	NO. OF ASTRONAUTS	MISSION DURATION	MAN-HOURS	MISSION	NO. OF ASTRONAUTS	MISSION DURATION	MAN-HOURS
MERCURY REDSTONE:				APOLLO SATURN V:			
MR-3 } Suborbital	1	0:15	0:15	8	3	147:01	441:03
MR-4 }	1	0:16	0:16	9	3	241:01	723:03
Total 2	2	0:31	0:31	10	3	192:03	576:09
MERCURY ATLAS:				11	3	195:19	585:57
MA-6	1	4:55	4:55	12	3	244:36	733:48
MA-7	1	4:56	4:56	13	3	142:55	428:45
MA-8	1	9:13	9:13	14	3	216:02	648:06
MA-9	1	34:20	34:20	15	3	295:12	885:36
Total 4	4	53:24	53:24	16	3	265:51	797:33
GEMINI TITAN:				17	3	301:52	905:36
GT-3	2	4:53	9:46	Total 10	30	2241:52	6725:36
GT-4	2	97:56	195:52	SKYLAB SL-I SATURN V:			
GT-5	2	190:55	381:50	SL-2 - Saturn IB	3	672:50	2018:30
GT-7	2	330:35	661:10	SL-3 - Saturn IB	3	1427:09	4281:27
GT-6A	2	25:51	51:42	SL-4 - Saturn IB	3	2017:16	6051:48
GT-8	2	10:41	21:22	Total 3	9	4117:15	12,351:45
GT-9A	2	72:21	144:42	APOLLO SATURN IB:			
GT-10	2	70:47	141:34	ASTP	3	217:28	652:24
GT-11	2	71:17	142:34	Total 1	3	217:28	652:24
GT-12	2	94:35	189:10	SPACE TRANS SYSTEM			
Total 10	20	969:51	1939:42	STS-1 (Columbia)	2	54:21	108:42
APOLLO SATURN I:				STS-2 (Columbia)	2	54:13	108:26
7	3	260:09	780:27	Total 2	4	108:34	217:08
Total 1	3	260:09	780:27	USA TOTAL 33	75	7,969:04	22,720:57

Summary Of Soviet Union Manned Space Flight

MISSION	NO. OF COSMONAUTS	MISSION DURATION	MAN-HOURS	MISSION (Cont'd)	NO. OF COSMONAUTS	MISSION DURATION	MAN-HOURS
			HRS., MINS.				
VOSTOK:				16	2	142:24	284:48
1	1	1:48	1:48	17	2	709:20	1418:40
2	1	25:18	25:18	18	2	151:20	302:40
3	1	94:25	94:25	19 (ASTP)	2	142:31	285:02
4	1	70:59	70:59	21	2	1182:24	2364:48
5	1	119:06	119:06	22	2	189:54	379:48
6	1	70:50	70:50	23	2	48:06	96:12
Total 6	6	382:26	382:26	24	2	425:23	850:46
VOSKHOD:				25	2	48:46	97:32
1	3	24:17	72:51	26	2	2314:00	4628:00
2	2	26:02	52:04	*27	2	142:59	285:58
Total 2	5	50:19	124:55	28	2	190:17	380:34
SOYUZ:				*29	2	3350:48	6701:36
1	1	26:37	26:37	30	2	190:04	380:08
2	1	94:51	94:51	*31	2	188:49	377:38
*3	1	71:23	71:23	*32	2	4200:36	8401:12
*4	2	95:38	95:38	33	2	47:01	94:02
*5	1	72:56	72:56	*35	2	4436:12	8872:24
6	2	118:42	237:24	*36	2	188:46	377:32
7	3	118:41	355:03	T-2	2	94:41	189:22
8	2	118:50	237:40	*37	2	188:42	377:24
9	2	424:59	849:58	*38	2	188:43	377:26
10	3	47:46	143:18	T-3	3	307:08	921:24
11	3	570:22	1711:06	T-4	2	1074:38	2149:16
12	2	47:16	94:32	39	2	188:43	377:26
13	2	188:55	377:50	40	2	188:41	377:22
14	2	377:30	755:00	Total 41	84	24,208:12	49,290:20
15	2	48:12	96:24	USSR Total 49	95	24,640:57	49,797:41

*Crews exchanged spacecraft for re-entry

NASA Record Of Performance (Scout & Larger Vehicles)

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VEHICLE	TOTAL	SUCCESSES	% SUCCESS	1980 TOTAL VEHICLE LAUNCH RECORD		
				ATTEMPTS	SUCCESSES	% SUCCESS
Space Shuttle	2	2	100			
Mercury (Blue) Scout	1	0	0	Atlas Centaur	3	3 100
Juno II	10	4	40	Atlas-F	1	0 0
Jupiter C	1	0	0 1/	Delta	3	3 100
Thor-Able	5	3	60	Scout	--	-- 100
Vanguard	4	1	25	TOTAL	7	6 86
Atlas-Able	3	0	0			
Atlas 2	11	9	82	1981 TOTAL VEHICLE LAUNCH RECORD		
Thor	2	2	100	Space Shuttle	2	2 100
Little Joe	7	7	100	Atlas Centaur	4	4 100
Little Joe II	5	4	80	Atlas-F	1	1 100
Scout X	1	0	0	Delta	5	5 100
Scout	76*	69	91	Scout	1	1 100
Redstone	5	5	100	TOTAL	13	13 100
Thor-Delta (Incl. TAD)	158	146	92			
Thor-Agena (Incl. TAT)	13	12	92			
Atlas-Agena & F	31	24	77			
Atlas-Centaur	58	50	86			
Saturn I	10	10	100			
Titan II	12	12	100			
Titan III C	1	1	100			
Titan III E Centaur	7	6	86			
Atlas X-259	2	2	100			
Gemini (A-A Target)	6	4	67			
Saturn IB	9	9	100			
Saturn V	13	12	92			
TOTAL	453	394	87			

Includes all launches (Little Joes, Scouts, and larger), funded by NASA or for which NASA has vehicle performance responsibility, including vehicle development missions.
*Excludes 26 DOD Scouts

1/ Does not include three successful launches of Jupiter C made prior to creation of NASA by projects transferred to NASA in October 1958.
2/ Includes Atlas vehicle for the Gemini ATDA.

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NASA Major Launch Record

1981

MISSION		DATE (GMT)		PERIOD	ORBITAL PARAMETERS			WEIGHT	MISSION REMARKS (All launches from ETR, unless otherwise noted.)
Name/Design	Vehicle	Launch	Down	(mins.)	Apogee (km)	Perigee	Incl. °	(kg)	
Comstar D 1981 018A	A-Centaur	21 Feb			GEOSYNCHRONOUS ORBIT			1516	Comsat Domestic Communications Satellite - Reimbursable
STS-1 1981 034A	Shuttle (Columbia)	12 Apr	14 Apr	89.4	250	238	40.3	NA	First Orbital Flight - Commander John Young and Pilot Robert Crippen - Mission Duration 54 hrs. 21 min.
NOVA-1 1981 044A	Scout	15 May			NO ELEMENTS AVAILABLE			167	US Navy Navigation Satellite - Reimbursable - WTR
GOES-E 1981 049A	Delta	22 May			GEOSYNCHRONOUS ORBIT			837	Geosynchronous Operational Environmental Satellite for NOAA - Reimbursable
Intelsat V-B 1981 050A	A-Centaur	23 May			GEOSYNCHRONOUS ORBIT			1928	Comsat Communications Satellite - Reimbursable
NOAA-C 1981 059A	Atlas-F	23 Jun			GEOSYNCHRONOUS ORBIT			1405	NOAA Meteorological Satellite - Reimbursable - WTR
DE-A & B 1981 070 A & B	Delta	3 Aug		437.9 97.8	24,775 999	672 303	90.0 90.0	403 415	Dynamics Explorer - NASA scientific mission to study the Earth's electromagnetic fields. (Dual Payload) - WTR
FLTSATCOM-E 1981 073A	A-Centaur	6 Aug			GEOSYNCHRONOUS ORBIT			1876	Fleet Satellite Communications for DOD - Reimbursable
SBS-B 1981 096A	Delta	24 Sep			GEOSYNCHRONOUS ORBIT			1057	Satellite Business Systems - Domestic Communications Satellite - Reimbursable
SME 1981 100A	Delta	6 Oct		95.3	534	533	98.0	425	Solar Mesosphere Explorer - NASA scientific mission to study the nature and magnitude of changes in the mesosphere ozone.
STS-2 1981 111A	Shuttle (Columbia)	12 Nov	14 Nov	88.9	229	219	38.0	2542	Second Orbital Flight and the First Payload - Commander Joe Engle and Pilot Richard Truly - Mission Duration 54 hrs. 13 min. The OST-1 payload demonstrated the Shuttle's capabilities to conduct scientific research in the attached mode.
RCA-D 1981 114A	Delta	19 Nov			GEOSYNCHRONOUS ORBIT			1082	RCA Communications Satellite - Reimbursable
Intelsat V F-3 1981 119A	A-Centaur	15 Dec			GEOSYNCHRONOUS ORBIT			1928	Comsat Communications Satellite - Reimbursable

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	PROGRAM	VEHICLE		MISSION	
		SUCCESS/ ATTEMPTS	% SUCCESS	SUCCESS/ ATTEMPTS	% SUCCESS
Total NASA Performance By Major Program Activity (Excludes Reimbursables, Cooperatives and Small Piggybacks)	Mercury	20/23	87%	18/23	78%
	Gemini *	17/19	89%	10/14	71%
	Apollo (Includes ASTP)	28/30	93%	27/30	90%
	Skylab	4/4	100%	3/3	100%
	STS	2/2	100%	2/2	100%
	MANNED SPACE TOTAL	71/78	91%	60/72	83%
	Geoprobes	4/4	100%	4/4	100%
	Orbital Flights	62/77	81%	61/79	77%
	Physics and Astronomy	66/81	81%	65/83	78%
	Lunar Probes	19/28	68%	14/28	50%
	Planetary and Deep Space	20/24	83%	20/24	83%
	Lunar and Planetary	39/52	75%	34/52	65%
	Bioscience	4/4	100%	2/4	50%
	Launch Vehicle Development	8/13	62%	8/13	62%
	SPACE SCIENCE TOTAL	117/150	78%	109/152	72%
	Communications	13/16	81%	11/16	69%
	Earth Observations	24/25	96%	24/25	96%
	Special Applications	5/5	100%	5/5	100%
	Applications Explorers	3/3	100%	3/3	100%
	APPLICATIONS TOTAL	43/49	92%	43/49	87%
	Suborbital	11/13	85%	10/13	77%
	Orbital	7/9	78%	6/9	67%
	SPACE TECHNOLOGY TOTAL	18/22	82%	16/22	73%
	TOTAL NASA MISSIONS	251/299	84%	228/295	77%
	*Does not include target vehicles				

NASA REIMBURSABLE & COOPERATIVE LAUNCHES

(1958 - 1981)			
<u>COMMERCIAL</u>		<u>INTERNATIONAL</u>	
COMSAT	37	REIMBURSABLE LAUNCHES	34
AT&T	2	COOPERATIVE LAUNCHES	<u>28</u>
WESTERN UNION	3		
RCA	4		
SBS	<u>2</u>	TOTAL	62
TOTAL (ALL REIMBURSABLE)	48		
<u>U.S. GOVERNMENT</u>		<u>SUMMARY</u>	
DOD	15	COMMERCIAL	<u>48</u>
AEC	2	INTERNATIONAL	62
NRL	3	U.S. GOVERNMENT	<u>44</u>
ESSA	9		
NOAA	<u>15</u>		
TOTAL (INCLUDES 3 COOPERATIVES)	44	TOTAL (123 REIMBURSABLES & 31 COOPERATIVES)	154

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NASA/USA Government Cooperative & Reimbursable Launches

LAUNCH			LAUNCH		
AGENCY/SPACECRAFT	VEHICLE	DATE (GMT)	AGENCY/SPACECRAFT	VEHICLE	DATE (GMT)
Atomic Energy Commission			Environmental Science Services Agency		
RFD-1 (Re-entry Test)	Scout	22 May 63	ESSA I (OT-3)	Thor-Delta	3 Feb 66
RFD-2 (Re-entry Test)	Scout	9 Oct 64	ESSA II (OT-2)	Thor-Delta	28 Feb 66
Naval Research Lab			ESSA III (TOS-A)	Thor-Delta	2 Oct 66
*Explorer XXX (Solar Physics)	Scout	19 Nov 65	ESSA IV (TOS-B)	Thor-Delta	26 Jan 67
*Explorer XXXVII (Solar Physics)	Scout	5 Mar 68	ESSA V (TOS-C)	Thor-Delta	20 Apr 67
*Explorer 44 (Solar Physics)	Scout	8 Jul 71	ESSA VI (TOS-D)	Thor-Delta	10 Nov 67
Department of Defense			ESSA VII (TOS-E)	Thor-Delta	16 Aug 68
CRL (USAF)(Geophysics)	Scout	28 Jun 63	ESSA VIII (TOS-F)	Thor-Delta	15 Dec 68
QV-3 (USAF)(Radiation Research)	Scout	9 Jun 66	ESSA IX (TOS-G)	Thor-Delta	26 Feb 69
TRANSIT (USN)	Scout	2 Sep 72	National Oceanic & Atmospheric Agency		
TRANSIT (USN)	Scout	29 Oct 73	ITOS-A (NOAA-1)	Thor-Delta	11 Dec 70
TRANSIT (USN)	Scout	12 Oct 75	ITOS-B (NOAA)	Thor-Delta 1/	21 Oct 71
USAF Test (Comm. Research)	Scout	22 May 76	ITOS-D (NOAA-2)	Thor-Delta	15 Oct 72
TRANSIT (USN)	Scout	1 Sep 76	ITOS-E (NOAA)	Thor-Delta 1/	16 Jul 73
TRANSAT (USN)	Scout	23 Oct 77	ITOS-F (NOAA-3)	Thor-Delta	6 Nov 73
FLTSATCOM A	A-Centaur	9 Feb 78	ITOS-G (NOAA-4)	Delta	15 Nov 74
SCATHA	Delta	30 Jan 79	SMS-C (GOES-1)(NOAA)	Delta	16 Oct 75
FLTSATCOM B	A-Centaur	4 May 79	ITOS-H (NOAA-5)	Delta	29 Jul 76
FLTSATCOM C	A-Centaur	17 Jan 80	GOES-2 (NOAA)	Delta	16 Jun 77
FLTSATCOM D	A-Centaur	31 Oct 80	GOES-3 (NOAA)	Delta	21 Jun 78
NOVA-1 (USN)	Scout	15 May 81	NOAA-6	Atlas-F	29 May 80
FLTSATCOM E	A-Centaur	6 Aug 81	NOAA-7	Atlas-F 1/	9 Sep 80
*Cooperatives			GOES-4 (NOAA)	Delta	22 May 81
1/ Vehicle Failure			GOES-5 (NOAA)	Delta	23 Jun 81
Total Reimbursables..... 41			NOAA-C	Atlas-F	
Total Cooperatives..... 3					
Total Launches..... 44					
Total Successful..... 41					

NASA/USA Commercial Reimbursable Launches

SPACECRAFT	LAUNCH		SPACECRAFT	LAUNCH	
	VEHICLE	DATE (GMT)		VEHICLE	DATE (GMT)
AT&T			Comstar-A	Delta	22 Apr 76
Telstar	Thor-Delta	10 Jul 62	Comstar-B	Delta	22 Jul 76
Telstar	Thor-Delta	7 May 63	Marisat-A	Delta	19 Feb 76
			Marisat-B	Delta	9 Jun 76
			Marisat-C	Delta	14 Oct 76
COMSAT			Intelsat IVA F-4	A-Centaur	26 May 77
Intelsat I F-1	Delta	6 Apr 65	Intelsat IVA F-5	A-Centaur 1/	29 Sep 77
Intelsat II F-1	Delta	26 Oct 66	Intelsat IVA F-3	A-Centaur	7 Jan 78
Intelsat II F-2 2/	Delta	11 Jan 67	Comstar D-3	A-Centaur	31 Mar 78
Intelsat II F-3	Delta	23 Mar 67	Intelsat V-A	A-Centaur	29 Jun 78
Intelsat II F-4	Delta	28 Sep 67	Intelsat V-C	A-Centaur	6 Dec 80
Intelsat III F-1	Delta 1/	19 Sep 68	Comstar	A-Centaur	21 Feb 81
Intelsat III F-2	Delta	19 Dec 68	Intelsat V-B	A-Centaur	23 May 81
Intelsat III F-3	Delta	6 Feb 69	Intelsat V-C	A-Centaur	15 Dec 81
Intelsat III F-4	Delta	22 May 69	Western Union		
Intelsat III F-5	Delta 1/	26 Jul 69	Westar A	Delta	13 Apr 74
Intelsat III F-6	Delta	15 Jan 70	Westar B	Delta	10 Oct 74
Intelsat III F-7	Delta	23 Apr 70	Westar C	Delta	9 Aug 79
Intelsat III F-8 2/	Delta	23 Jul 70			
Intelsat IV F-2	A-Centaur	25 Jan 71	RCA		
Intelsat IV F-3	A-Centaur	19 Dec 71	RCA-A	Delta	12 Dec 75
Intelsat IV F-4	A-Centaur	22 Jan 72	RCA-b	Delta	26 Mar 76
Intelsat IV F-5	A-Centaur	13 Jun 72	RCA-C 2/	Delta	6 Dec 79
Intelsat IV F-7	A-Centaur	23 Aug 73	RCA-D	Delta	19 Nov 81
Intelsat IV F-8	A-Centaur	21 Nov 74	SBS		
Intelsat IV F-6	A-Centaur 1/	20 Feb 75	SBS-A	Delta	15 Nov 80
Intelsat IV F-1	A-Centaur	22 May 75	SBS-B	Delta	24 Sep 81
Intelsat IVA F-1	A-Centaur	25 Sep 75			
Intelsat IVA F-2	A-Centaur	29 Jan 76			
			1/ VEHICLE FAILURE	Total Launches - - - - 48	
			2/ SPACECRAFT FAILURE	Total Successful Launches - 44	
				Total Successful Payloads - 41	

NASA/International Cooperative & Reimbursable Launches

(SCOUT AND LARGER VEHICLES)							
YEAR	SPACECRAFT TITLE	LAUNCH		YEAR	SPACECRAFT TITLE	LAUNCH	
		VEHICLE	DATE (GMT)			VEHICLE	DATE (GMT)
1962	ARIEL-I (United Kingdom) ALOUETTE -I (Canada)	DELTA THOR-AGENA-B	26 Apr 29 Sep	1971	*NATO-B (NATOSAT-II) ISIS-B (Canada) SAN MARCO (C) (Italy) CAS/EOLE-A (France) BARIUM ION CLOUD (Germany) UK-4 (United Kingdom)	DELTA DELTA SCOUT SCOUT SCOUT SCOUT	2 Feb 31 Mar 24 Apr 16 Aug 20 Sep 11 Dec
1964	ARIEL-II (United Kingdom) SAN MARCO-I (Italy)	SCOUT SCOUT	27 Mar 15 Dec				
1965	ALOUETTE - II (Canada) (Piggyback on Explorer XXXI) FRENCH IA (France)	NA SCOUT	29 Nov 6 Dec	1972	*ESRO (HEOS A-2) *ESRO (TD-1) *TELESAT-A (ANIK-1) (Canada) *ESRO-IV German A-2 (AEROS)	DELTA DELTA DELTA SCOUT SCOUT	31 Jan 12 Mar 9 Nov 21 Nov 16 Dec
1967	SAN MARCO 2 (Italy) ARIEL-III (United Kingdom) ESRO-IIA	SCOUT SCOUT SCOUT 1/	26 Apr 5 May 29 May	1973	*TELESAT B (ANIK-2) (Canada)	DELTA	20 Apr
1968	ESRO-IIB (IRIS) ESRO-IA (Aurora) *ESRO (HEOS-A)	SCOUT SCOUT DELTA	17 May 3 Oct 5 Dec	1974	*SKYNET II A (United Kingdom) SAN MARCO C-2 (Italy) *UK-X4 (United Kingdom) *AEROS-B (Germany) ANS-A (Netherlands) UK-5/AERIEL 5 (United Kingdom) INTASAT (Spain-Piggyback on ITOS-G) *SKYNET II-B (United Kingdom) HELIOS-A (Germany) *SYMPHONIE-A (France-Germany)	DELTA 1/ SCOUT SCOUT SCOUT SCOUT SCOUT NA DELTA TITAN III E CENTAUR DELTA	19 Jan 18 Feb 8 Mar 16 Jul 30 Aug 15 Oct 15 Nov 22 Nov 10 Dec 18 Dec
1969	ISIS-I (Canada) *ESRO-IB (Borea) AZUR-I (German) (GRS-A) SKYNET-I (United Kingdom)	DELTA SCOUT SCOUT DELTA	30 Jan 1 Oct 8 Nov 22 Nov				
1970	*SKYNET-2 (United Kingdom) *NATO-A (NATOSAT-I)	DELTA DELTA	19 Aug 20 Mar				

1/ Vehicle failure *Reimbursable Launches

NASA/International Cooperative & Reimbursable Launches

(SCOUT AND LARGER VEHICLES)							
YEAR	SPACECRAFT TITLE	LAUNCH		YEAR	SPACECRAFT TITLE	LAUNCH	
		VEHICLE	DATE (GMT)			VEHICLE	DATE (GMT)
1975	*TELESAT C (Canada)	Delta	7 May	1979	*UK-6 (United Kingdom)	Scout	2 Jun 79
	*COS-B (ESA)	Delta	8 Aug				
	*SYMPHONIE-B (France-Germany)	Delta	26 Aug				
1976	Hellas-B (Germany)	T-III-Centaur	15 Jan				
	CAS-CTS (Canada)	Delta	17 Jan				
	*NATO III-A	Delta	22 Apr				
	*Palapa-A (Indonesia)	A-Centaur	13 May				
1977	*NATO III-B	Delta	27 Jan				
	*Palapa-B (Indonesia)	Delta	10 Mar				
	*GEOS (ESA)	Delta 1/	20 Apr				
	*GMS (Japan)	Delta	14 Jul				
	*SIRIO (Italy)	Delta	25 Aug				
	*OTS (ESA)	Delta 1/	13 Sep				
	ISEE A/B (ESA-Dual Payload)	Delta	22 Oct				
	*METEOSAT (ESA)	Delta	22 Nov				
	*CS (Japan)	Delta	14 Dec				
1978	IUE-A (ESA)	Delta	26 Jan				
	*BSE (Japan)	Delta	7 Apr				
	*OTS-B (ESA)	Delta	11 May				
	*GEOS-B (ESA)	Delta	14 Jul				
	ISEE-C (ESA)	Delta	12 Aug				
	*NATO-III C	Delta	19 Nov				
	*Telesat (Canada)	Delta	16 Dec				
*Reimbursable Launches 1/ Vehicle Failure							
						Total Cooperatives.....28 Total Reimbursables.....34 Total Launches.....62 Total Successful Launches.....58 Total Successful Payloads.....61 2/	
						2/ Includes 1 Dual Payload & 2 Piggybacks	

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Summary Of
Manned Space Flight
Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
MERCURY PROGRAM				
<u>Suborbital Flights</u>				
Big Joe	9 Sep 59	Atlas	S	S
Little Joe-1 - Vehicle Test	4 Oct 59	Little Joe-6	S	S
Little Joe-2	4 Nov 59	Little Joe-1A	S	S
Little Joe-3	4 Dec 59	Little Joe-2	S	S
Little Joe-4	21 Jan 60	Little Joe-1B	S	S
Mercury (MA-1)	29 Jul 60	Atlas	U	U
Little Joe-5	8 Nov 60	Little Joe-5	S	U
Mercury (MR-1A)	19 Dec 60	Redstone	S	S
Mercury (MR-2)	31 Jan 61	Redstone	S	S
Mercury (MA-2)	21 Feb 61	Atlas	S	S
Little Joe-5A	18 Mar 61	Little Joe-5A	S	U
Mercury (MR-BD) - Vehicle Test	24 Mar 61	Redstone	S	S
Little Joe-5B	28 Apr 61	Little Joe-5B	S	S
Freedom 7 - (MR-3) (Manned)	5 May 61	Redstone	S	S
Liberty Bell-7 (MR-4) (Manned)	21 Jul 61	Redstone	S	S
TOTAL (Success/Attempts)			14/15	12/15
<u>Orbital Flights</u>				
Mercury (MA-3)	25 Apr 61	Atlas	U	U
Mercury (MA-4)	13 Sep 61	Atlas	S	S
Mercury (MS-1)	1 Nov 61	(Mercury Blue Scout)	U	U
Mercury (MA-5)	29 Nov 61	Atlas	S	S
Friendship 7 (MA-6) (Manned)	20 Feb 62	Atlas	S	S
Aurora 7 (MA-7) (Manned)	24 May 62	Atlas	S	S
Sigma 7 (MA-8) (Manned)	3 Oct 62	Atlas	S	S
Falch 7 (MA-9) (Manned)	15 May 63	Atlas	S	S
TOTAL (Success/Attempts)			6/8	6/8

Summary Of Manned Space Flight Mission Performance By Program Activities	MISSION		LAUNCH		ASSESSMENT	
	GEMINI PROGRAM (Suborbital Flights)		DATE	VEHICLE	VEHICLE	MISSION
	Gemini II		19 Jan 65	Titan II	S	S
	TOTAL (Success/Attempts)				1/1	1/1
	<u>Orbital Flights</u>					
	Gemini I		8 Apr 64	Titan II	S	S
	Gemini III (Manned)		23 Mar 65	Titan II	S	S
	Gemini IV (Manned)		3 Jun 65	Titan II	S	S
	Gemini V (Manned)		21 Aug 65	Titan II	S	S
	Gemini VI		25 Oct 65	Atlas-Agena	U	U
	Gemini VII (Manned)		4 Dec 65	Titan II	S	S
	Gemini VI-A (Manned)		15 Dec 65	Titan II	S	S
	Gemini VIII (Manned)		16 Mar 66	Atlas-Agena/Titan II	S/S	U
	Gemini IX		17 May 66	Atlas-Agena	U	U
	Gemini IX-A (Manned)		1 Jun 66	Atlas/Titan II	S/S	U
	Gemini X (Manned)		18 Jul 66	Atlas-Agena/Titan II	S/S	S
	Gemini XI (Manned)		12 Sep 66	Atlas-Agena/Titan II	S/S	S
	Gemini XII (Manned)		11 Nov 66	Atlas-Agena/Titan II	S/S	S
	TOTAL (Success/Attempts)				16/18	9/13
	<u>APOLLO PROGRAM (Suborbital Flights)</u>					
	Saturn Test (SA-1)		27 Oct 61	*Saturn I	S	S
	Saturn (SA-2)		25 Apr 62	*Saturn I	S	S
	Saturn (SA-3)		16 Nov 62	*Saturn I	S	S
	Saturn (SA-4)		28 Mar 63	*Saturn I	S	S
	Little Joe II #1		28 Aug 63	*Little Joe II	S	S
	Apollo Transonic Abort		13 May 64	*Little Joe II	S	S
	Apollo Max Q Abort		8 Dec 64	*Little Joe II	S	S
	High Altitude Abort		19 May 65	*Little Joe II	U	U
	Intermediate Altitude Abort		20 Jan 66	*Little Joe II #5	S	S
	Saturn (AS-201)		26 Feb 66	*Upgraded Saturn I	S	S
	Saturn (AS-202)		25 Aug 66	*Upgraded Saturn I	S	S
	TOTAL (Success/Attempts)				10/11	10/11

*Launch Vehicle Development

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Summary Of Manned Space Flight Mission Performance

By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
APOLLO PROGRAM (Cont'd)				
<u>Orbital Flights</u>				
Saturn (SA-5)	29 Jan 64	*Saturn I	S	S
Saturn (SA-6)	28 May 64	*Saturn I	S	S
Saturn (SA-7)	18 Sep 64	*Saturn I	S	S
Saturn (AS-203)	5 Jul 66	*Upgraded Saturn I	S	S
Apollo 4 (501/017)	9 Nov 67	*Saturn V	S	S
Apollo 5 (204/LM-1)	22 Jan 69	Saturn IB	S	U
Apollo 6 (502/CSM-020/LTA-2R)	4 Apr 68	*Saturn V	U	U
Apollo 7 (205/CSM-101) (Manned)	11 Oct 68	Saturn IB	S	S
Apollo 8 (503/CSM-103/LTA-8) (Manned)	21 Dec 68	Saturn V	S	S
Apollo 9 (504/CSM-104/LM-3) (Manned)	3 Mar 69	Saturn V	S	S
Apollo 10 (505/CSM-106/LM-4) (Manned)	18 May 69	Saturn V	S	S
Apollo 11 (506/CSM-107/LM-5) (Manned)	16 Jul 69	Saturn V	S	S
Apollo 12 (507/CSM-108/LM-6) (Manned)	14 Nov 69	Saturn V	S	U
Apollo 13 (508/CSM-109/LM-7) (Manned)	11 Apr 70	Saturn V	S	S
Apollo 14 (509/CSM-110/LM-8) (Manned)	31 Jan 71	Saturn V	S	S
Apollo 15 (510/CSM-112/LM-10) (Manned)	26 Jul 71	Saturn V	S	S
Apollo 16 (511/CSM-113/LM-11) (Manned)	16 Apr 72	Saturn V	S	S
Apollo 17 (512/CSM-114/LM-12) (Manned)	7 Dec 72	Saturn V	S	S
Apollo (ASTP)	15 Jul 75	Saturn IB	S	S
TOTAL (Success/Attempts)			18/19	17/19
SKYLAB PROGRAM				
Workshop SL-1 (513/S-IVB 212)	14 May 73	Saturn V	S	} S
First Manned Visit SL-2 (206/CSM-116)	25 May 73	Saturn IB	S	
Second Manned Visit SL-3 (207/CSM-117)	28 Jul 73	Saturn IB	S	
Third Manned Visit SL-4 (208/CSM-118)	16 Nov 73	Saturn IB	S	
TOTAL (Success/Attempts)			4/4	3/3

*Launch Vehicle Development

Summary Of Manned Space Flight Mission Performance By Program Activities	MISSION	LAUNCH		ASSESSMENT	
		DATE	VEHICLE	VEHICLE	MISSION
	SPACE TRANSPORTATION SYSTEM Orbital Flight Test Program STS-1 STS-2 TOTAL (Success/Attempts)	12 Apr 81 12 Nov 81	Columbia Columbia	S S 2/2	S S 2/2

B-21

	MISSION	LAUNCH		ASSESSMENT	
		DATE	VEHICLE	VEHICLE	MISSION
Summary Of Space Science Flight Mission Performance By Program Activities	<u>BIOSCIENCE - ORBITAL FLIGHTS</u>				
	Biosatellite I (A)	14 Dec 66	Thor-Delta	S	U
	Biosatellite II (B)	7 Sep 67	Thor-Delta	S	S
	Biosatellite III (D)	29 Jun 69	Thor-Delta	S	U
	OFQ-I (A)	9 Nov 70	Scout	S	S
	TOTAL (Success/Attempts)			4/4	2/4
	<u>LAUNCH VEHICLE DEVELOPMENT</u>				
	<u>Sub-Orbital Flights</u>				
	Scout X	18 Apr 60	Scout X	U	U
	Scout	1 Jul 60	Scout	S	S
	Scout	4 Oct 60	Scout	S	S
	Centaur Test (AC-1)	8 May 62	Atlas-Centaur	U	U
	Centaur (AC-3)	30 Jun 64	Atlas-Centaur	S	S
	Centaur (AC-4)	11 Dec 64	Atlas-Centaur	S	S
	TOTAL (Success/Attempts)			4/6	4/6
	<u>Orbital Flights</u>				
	Centaur (AC-2)	27 Nov 63	Atlas-Centaur	S	S
	Centaur (AC-5)	2 Mar 65	Atlas-Centaur	U	U
	Scout Evaluation Vehicle A	10 Aug 65	Scout	S	S
	Centaur (AC-6)	11 Aug 65	Atlas-Centaur	-	S
	Centaur (AC-8)	8 Apr 66	Atlas-Centaur	U	J
	Centaur (AC-9)	26 Oct 66	Atlas-Centaur	S	S
	Centaur Proof Flight	11 Feb 74	Titan III E-Centaur	U	U
	TOTAL (Success/Attempts)			4/7	4/7

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	MISSION	LAUNCH		ASSESSMENT	
		DATE	VEHICLE	VEHICLE	MISSION
Summary Of Space Science Flight Mission Performance By Program Activities	PHYSICS AND ASTRONOMY				
	Geoprobes				
	Explorer 10 (P-14) (Atmosphere Physics)	25 Mar 61	Thor-Delta	S	3
	Probe A (P-21) (Scientific Geoprobe)	19 Oct 61	Scout	S	S
	P-21a (Scientific Geoprobe)	29 Mar 62	Scout	S	S
	Gravity Probe (Gravity Measurements)	18 Jul 76	Scout	S	S
	TOTAL (Success/Attempts)			4/4	4/4
	Orbital Flights				
	Beacon 1 (Atmosphere Physics)	23 Oct 58	Jupiter C	U	U
	Beacon 2 (Atmosphere Physics)	14 Aug 59	Juno II	U	U
	Beacon A (S-66) (Atmosphere Physics)	19 Mar 64	Thor-Delta	U	U
	TOTAL (Success/Attempts)			0/3	0/3
	Vanguard II (Meteorology)	17 Feb 59	Vanguard (SLV-4)	U	U
	Vanguard (Atmosphere Physics)	13 Apr 59	Vanguard (SLV-5)	U	U
	Vanguard (Solar-Earth Heating)	22 Jun 59	Vanguard (SLV-6)	U	U
	Vanguard III (Magnetic Fields)	18 Sep 59	Vanguard (SLV-7)	S	S
	TOTAL (Success/Attempts)			1/4	1/4
	Explorer (S-1) (Energetic Particles)	16 Jul 59	Juno II	U	U
	Explorer 6 (S-2) (Meteorology)	7 Aug 59	Thor-Able	S	S
	Explorer 7 (S-1a) (Energetic Particles)	13 Oct 59	Juno II	S	S
	Explorer (S-46) (Energetic Particles)	23 Mar 60	Juno II	U	U
	Explorer 8 (S-30) (Atmosphere Physics)	3 Nov 60	Juno II	S	S
	Explorer (S-56) (Atmosphere Physics)	4 Dec 60	Scout	U	U
	Explorer 9 (S-56a) (Atmosphere Physics)	16 Feb 61	Scout	S	S
	Explorer (S-45) (Atmosphere Physics)	24 Feb 61	Juno II	J	U
	Explorer 11 (S-15) (Gamma-ray Astronomy)	27 Apr 61	Juno II	S	S
	Explorer (S-45a) (Atmosphere Physics)	24 May 61	Juno II	U	U

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	MISSION	LAUNCH		ASSESSMENT	
		DATE	VEHICLE	VEHICLE	MISSION
Summary Of Space Science Flight Mission Performance By Program Activities	PHYSICS AND ASTRONOMY (Cont'd)				
	Orbital Flights (Cont'd)				
	Explorer 12 (S-3) (Atmosphere Physics)	16 Aug 61	Thor-Delta	S	S
	Explorer 14 (S-3a) (Atmosphere Physics)	2 Oct 62	Thor-Delta	S	S
	Explorer 15 (S-3b) (Atmosphere Physics)	27 Oct 62	Thor-Delta	S	S
	Explorer 17 (S-6) (Aeronomy)	2 Apr 63	Thor-Delta	S	S
	Explorer 18 (IMP-A)	26 Nov 63	Thor-Delta	S	S
	Explorer 19 (AD-A) (Atmosphere Physics)	19 Dec 63	Scout	S	S
	Explorer 20 (S-48) (Atmosphere Physics)	25 Aug 64	Scout	S	S
	Explorer 21 (IMP-B)	4 Oct 64	Thor-Delta	U	U
	Explorer 22 (BE-B) (Geodesy)	10 Oct 64	Scout	S	S
	Explorer 24 (Air Density) } Dual Mission	21 Nov 64	Scout	S	S
	Explorer 25 (Injun B)	21 Dec 64	Thor-Delta	S	S
	Explorer 26 (S-3C) (Atmosphere Physics)	29 Apr 65	Scout	S	S
	Explorer 27 (BE-C) (Geodesy)	29 May 65	Thor-Delta	S	S
	Explorer 28 (IMP-C)	6 Nov 65	Thor-Delta	S	S
	Explorer 29 (GEOS)	29 Nov 65	Thor-Delta	S	S
	Explorer 31 (DME-A)	25 May 66	Thor-Delta	S	S
	Explorer 32 (AE-B)	1 Jul 66	Thor-Delta	S	S
	Explorer 33 (IMP-D)	24 May 67	Thor-Delta	S	S
	Explorer 34 (IMP-F)	19 Jul 67	Thor-Delta	S	S
	Explorer 35 (IMP-E)	4 Jul 68	Thor-Delta	S	S
	Explorer 38 (RAE-A)			S	S
	Explorer 39 (Air Density) } Dual Mission	8 Aug 68	Scout	-	S
	Explorer 40 (Injun V)	21 Jun 69	Thor-Delta	S	S
	Explorer 41 (IMP-G)	12 Dec 70	Scout	S	S
	Explorer 42 (SAS-A)			S	S
	Explorer 43 (IMP-I)	13 Mar 71	Delta	S	S

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	MISSION	LAUNCH		ASSESSMENT	
		DATE	VEHICLE	VEHICLE	MISSION
Summary Of Space Science Flight Mission Performance By Program Activities	<u>PHYSICS AND ASTRONOMY (Cont'd)</u>				
	<u>Orbital Flights (Cont'd)</u>				
	Explorer 45 (SSS-A)	15 Nov 71	Scout	S	S
	Explorer 47 (IMP-H)	22 Sep 72	Delta	S	S
	Explorer 48 (SAS-B)	15 Nov 72	Scout	S	S
	Explorer 49 (RAE-B)	10 Jun 73	Delta	S	S
	Explorer 50 (IMP-J)	25 Oct 73	Delta	S	S
	Explorer 51 (AE-C)	14 Dec 73	Delta	S	S
	Explorer 52 (Hawkeye-1)	3 Jun 74	Scout	S	S
	Explorer 53 (SAS-C)	7 May 75	Scout	S	S
	Explorer 54 (AE-D)	6 Oct 75	Delta	S	S
	Explorer 55 (AE-E)	19 Nov 75	Delta	S	S
	Explorer (DAD-A/B)	5 Dec 75	Scout	S	S
	Dynamics Explorer A/B	3 Aug 81	Delta	S	S
	Solar Mesosphere Explorer	6 Oct 81	Delta	S	S
	TOTAL (Success/Attempts)			10/10	12/12
	<u>HIGH ENERGY ASTRONOMY OBSERVATORY</u>				
	HEAO-A	12 Aug 77	A-Centaur	S	S
	HEAO-B	13 Nov 78	A-Centaur	S	S
	HEAO-C	20 Sep 79	A-Centaur	S	S
	TOTAL (Success/Attempts)			3/3	3/3
	<u>SOLAR MAXIMUM MISSION</u>				
	SMW-A	14 Feb 80	Delta	S	S
	TOTAL (Success/Attempts)			1/1	1/1

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	MISSION	LAUNCH		ASSESSMENT	
		DATE	VEHICLE	VEHICLE	MISSION
Summary Of Space Science Flight Mission Performance By Program Activities	<u>PHYSICS AND ASTRONOMY (Cont'd)</u>				
	<u>Orbiting Geophysical Observatory</u>				
	OGO-I (A) (EGO)	5 Sep 64	Atlas-Agena	S	U
	OGO-II (C) (POGO)	14 Oct 65	Thor-Agena	S	U
	OGO-III (B) (EGO)	7 Jun 66	Atlas-Agena	S	S
	OGO-IV (D) (POGO)	28 Jul 67	Thor-Agena	S	S
	OGO-V (E)	4 Mar 68	Atlas-Agena	S	S
	OGO-VI (F)	5 Jun 69	Thor-Agena	S	S
	TOTAL (Success/Attempts)			6/6	4/6
	<u>Orbiting Solar Observatory</u>				
	OSO-1 (S-16)	7 Mar 62	Thor-Delta	S	S
	OSO-2 (B-2)	3 Feb 65	Thor-Delta	S	S
	OSO-C	25 Aug 65	Thor-Delta	U	U
	OSO-3 (E)	8 Mar 67	Thor-Delta	S	S
	OSO-4 (D)	18 Oct 67	Thor-Delta	S	S
	OSO-5 (F)	22 Jan 69	Thor-Delta	S	S
	OSO-6 (G)	9 Aug 69	Thor-Delta	S	S
	OSO-7 (H)	29 Sep 71	Thor-Delta	S	S
	OSO-8 (I)	21 Jun 75	Delta	S	S
	TOTAL (Success/Attempts)			8/9	8/9
	<u>Orbiting Astronomical Observatory</u>				
	OAO-I (A)	8 Apr 66	Atlas-Agena	S	U
	OAO-II (A2)	7 Dec 68	Atlas-Centaur	S	S
	OAO-B	30 Nov 70	Atlas-Centaur	U	U
	OAO-C	21 Aug 72	Atlas-Centaur	S	S
	TOTAL (Success/Attempts)			3/4	2/4

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Summary Of
Space Science
Flight Mission Performance
By Program Activities

MISSION	LAUNCH		ASSESSMENT	
	DATE	VEHICLE	VEHICLE	MISSION
LUNAR & PLANETARY				
Ranger I (P-32)	23 Aug 61	Atlas-Agena	U	U
Ranger II (P-33)	18 Nov 61	Atlas-Agena	U	U
Ranger III (P-34)	26 Jan 62	Atlas-Agena	S	U
Ranger IV (P-35)	23 Apr 62	Atlas-Agena	S	U
Ranger V (P-36)	18 Oct 62	Atlas-Agena	S	U
Ranger VI (A)	30 Jan 64	Atlas-Agena	S	S
Ranger VII (B)	28 Jul 64	Atlas-Agena	S	S
Ranger VIII (C)	17 Feb 65	Atlas-Agena	S	S
Ranger IX (D)	21 Mar 65	Atlas-Agena	S	S
TOTAL (Success/Attempts)			4/9	3/9
Lunar Orbiter I (A)	10 Aug 66	Atlas-Agena	S	S
Lunar Orbiter II (B)	6 Nov 66	Atlas-Agena	S	S
Lunar Orbiter III (C)	5 Feb 67	Atlas-Agena	S	S
Lunar Orbiter IV (D)	4 May 67	Atlas-Agena	S	S
Lunar Orbiter V (E)	1 Aug 67	Atlas-Agena	S	S
TOTAL (Success/Attempts)			5/5	5/5
Surveyor I (A)	30 May 66	Atlas-Centaur	S	S
Surveyor II (B)	20 Sep 66	Atlas-Centaur	S	U
Surveyor III (C)	17 Apr 67	Atlas-Centaur	S	U
Surveyor IV (D)	14 Jul 67	Atlas-Centaur	S	S
Surveyor V (E)	8 Sep 67	Atlas-Centaur	S	S
Surveyor VI (F)	7 Nov 67	Atlas-Centaur	S	S
Surveyor VII (G)	7 Jan 68	Atlas-Centaur	S	S
TOTAL (Success/Attempts)			7/7	5/7

ORIGINAL PAGE IS OF POOR QUALITY Summary Of Space Science Flight Mission Performance By Program Activities	MISSION	LAUNCH		ASSESSMENT	
		DATE	VEHICLE	VEHICLE	MISSION
	LUNAR AND PLANETARY				
	Pioneer I (Lunar)	11 Oct 58	Thor-Able I	U	U
	Pioneer II (Lunar)	8 Nov 58	Thor-Able I	U	U
	Pioneer III (Lunar)	6 Dec 58	Juno-II	U	U
	Pioneer IV (Lunar)	3 Mar 59	Juno-II	S	S
	Pioneer (P-3) (Lunar)	26 Nov 59	Atlas-Able	U	U
	*Pioneer V (P-2)	11 Mar 60	Thor-Able IV	S	S
	Pioneer (P-30) (Lunar)	25 Sep 60	Atlas-Able	U	U
	Pioneer (P-31) (Lunar)	15 Dec 60	Atlas-Able	U	U
	*Pioneer VI (A)	16 Dec 65	TAD	S	S
	*Pioneer VII (B)	17 Aug 66	Delta	S	S
	*Pioneer VIII (C)	13 Dec 67	Delta	S	S
	*Pioneer IX (D)	8 Nov 68	Delta	S	S
	*Pioneer E	27 Aug 69	Delta	U	U
	Pioneer X (F) (Jupiter Flyby)	3 Mar 72	A-Centaur	S	S
	Pioneer XI (G) (Jupiter Flyby)	6 Apr 73	A-Centaur	S	S
	Pioneer/Venus-A	20 May 78	A-Centaur	S	S
	Pioneer/Venus-B	8 Aug 78	A-Centaur	S	S
	TOTAL (Success/Attempts)			10/17	10/17
	*Deep Space Probe				

Summary Of Space Science Flight Mission Performance By Program Activities	MISSION	LAUNCH		ASSESSMENT	
		DATE	VEHICLE	VEHICLE	MISSION
	<u>LUNAR AND PLANETARY</u>				
	Mariner I (P-37)(Venus Probe-Failed)	22 Jul 62	Atlas-Agena	U	U
	Mariner II (P-38)(Venus Flyby)	27 Aug 62	Atlas-Agena	S	S
	Mariner III (C)(Mars Probe-Failed)	5 Nov 64	Atlas-Agena	U	U
	Mariner IV (D)(Mars Flyby)	28 Nov 64	Atlas-Agena	S	S
	Mariner V (E)(Venus Flyby)	14 Jun 67	Atlas-Agena	S	S
	Mariner VI (F)(Mars Flyby)	25 Feb 69	Atlas-Centaur	S	S
	Mariner VII (G)(Mars Flyby)	27 Mar 69	Atlas-Centaur	S	S
	Mariner VIII (H)(Mars Orbiter -Failed)	8 May 71	Atlas-Centaur	U	U
	Mariner IX (I)(Mars Orbiter)	30 May 71	Atlas-Centaur	S	S
	Mariner X (J)(Venus/Mercury Flyby)	3 Nov 73	Atlas-Centaur	S	S
	TOTAL (Success/Attempts)			7/10	7/10
	Viking I (A)(Mars Lander & Orbiter)	20 Aug 75	Titan III Centaur	S	S
	Viking 2 (B)(Mars Lander & Orbiter)	9 Sep 75	Titan III Centaur	S	S
	TOTAL (Success/Attempts)			2/2	2/2
	Voyager 2 (Jupiter/Saturn Flyby)	20 Aug 77	Titan III Centaur	S	S
	Voyager 1 (Jupiter/Saturn Flyby)	5 Sep 77	Titan III Centaur	S	S
	TOTAL (Success/Attempts)			2/2	2/2

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Summary Of Communications Flight Mission Performance By Program Activities	MISSION	LAUNCH		ASSESSMENT	
		DATE	VEHICLE	VEHICLE	MISSION
	COMMUNICATIONS PROGRAM				
	<u>Suborbital Flights</u>				
	Echo (AVT-1)	15 Jan 62	Thor	S	S
	Echo (AVT-2)	18 Jul 62	Thor	S	S
	TOTAL (Success/Attempts)			2/2	2/2
	<u>Orbital Flights</u>				
	Echo (A-10)	13 May 60	Thor-Delta	U	U
	Echo I (A-11)	12 Aug 60	Thor-Delta	S	S
	Echo II (A-12)	25 Jan 64	Thor-Agena	S	S
	Relay I (A-15)	13 Dec 62	Thor-Delta	S	S
	Relay II (A-16)	21 Jan 64	Thor-Delta	S	S
	Syncom I (A-25)	14 Feb 63	Thor-Delta	S	U
	Syncom II (A-26)	26 Jul 63	Thor-Delta	S	S
	Syncom III (A-27)	19 Aug 64	Thor-Delta	S	S
	TOTAL (Success/Attempts)			7/8	6/8
	<u>Applications Technology Satellites</u>				
	ATS-I (B)	6 Dec 66	Atlas-Agena	S	S
	ATS-II (A)	6 Apr 67	Atlas-Agena	U	U
	ATS-III (C)	5 Nov 67	Atlas-Agena	S	S
	ATS-IV (D)	10 Aug 68	Atlas-Centaur	U	U
	ATS-V (E)	12 Aug 69	Atlas-Centaur	S	U
	ATS-VI (F)	30 May 74	Titan III C	S	S
	TOTAL (Success/Attempts)			4/6	3/6

	MISSION	LAUNCH		ASSESSMENT	
		DATE	VEHICLE	VEHICLE	MISSION
	<u>EARTH OBSERVATIONS PROGRAM</u>				
Summary Of Earth Observations Flight Mission Performance By Program Activities	Tiros I (A-1)	1 Apr 60	Thor-Able	S	S
	Tiros II (A-2)	23 Nov 60	Thor-Delta	S	S
	Tiros III (A-3)	12 Jul 61	Thor-Delta	S	S
	Tiros IV (A-9)	8 Feb 62	Thor-Delta	S	S
	Tiros V (A-50)	19 Jun 62	Thor-Delta	S	S
	Tiros VI (A-51)	18 Sep 62	Thor-Delta	S	S
	Tiros VII (A-52)	19 Jun 63	Thor-Delta	S	S
	Tiros VIII (A-53)	21 Dec 63	Thor-Delta	S	S
	Tiros IX (I EYE)	22 Jan 65	Thor-Delta	S	S
	Tiros X (OT-1)	2 Jul 65	Thor-Delta	S	S
	Tiros M (ITOS-1)	23 Jan 70	Thor-Delta	S	S
	Tiros N	13 Oct 78	Atlas-F	S	S
	TOTAL (Success/Attempts)			12/12	12/12
	Nimbus I (A)	23 Aug 64	Thor-Agena	S	S
	Nimbus II (C)	15 May 66	Thor-Agena	S	S
	Nimbus B	18 May 68	Thor-Agena	U	U
	Nimbus III (B-2)	14 Apr 69	Thorad-Agena	S	S
	Nimbus D (4)	8 Apr 70	Thor-Agena	S	S
	Nimbus E (5)	11 Dec 72	Delta	S	S
	Nimbus F (6)	12 Jun 75	Delta	S	S
	Nimbus G (7)	24 Oct 78	Delta	S	S
	TOTAL (Success/Attempts)			7/8	7/8

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Summary Of Special Applications Flight Mission Performance By Program Activities	MISSION	LAUNCH		ASSESSMENT	
		DATE	VEHICLE	VEHICLE	MISSION
	EARTH OBSERVATIONS PROGRAM (Cont'd)				
	ERTS-A	23 Jul 72	Delta	S	S
	Landsat-B (ERTS-B)	22 Jan 75	Delta	S	S
	Landsat-C	5 Mar 78	Delta	S	S
	TOTAL (Success/Attempts)			3/3	3/3
	SMS-A	17 May 74	Delta	S	S
	SMS-B	6 Feb 75	Delta	S	S
	TOTAL (Success/Attempts)			2/2	2/2
	SPECIAL APPLICATION PROGRAM				
	PAGEOS I (A)	24 Jun 66	Thor-Agena	S	S
	Explorer 36 (GEOS-II) (GEOS-B)	11 Jan 68	Thor-Agena	S	S
	GEOS-3 (C)	9 Apr 75	Delta	S	S
	LAGEOS-A	4 May 76	Delta	S	S
	Seasat	26 Jun 78	Atlas-F	S	S
	TOTAL (Success/Attempts)			5/5	5/5
	APPLICATIONS EXPLORERS				
	AEM-1 (HCM)	26 Apr 78	Scout	S	S
	AEM-2 (SAGE)	18 Feb 79	Scout	S	S
	AEM-3 (MAGSAT)	30 Oct 79	Scout	S	S
	TOTAL (Success/Attempts)			3/3	3/3

Summary Of
Space Technology
Flight Mission Performance
By Program Activities

Summary Of Space Technology Flight Mission Performance	MISSION	LAUNCH		ASSESSMENT		
		DATE	VEHICLE	VEHICLE	MISSION	
By Program Activities	SPACE TECHNOLOGY PROGRAM					
	Suborbital Flights					
	Reentry I (A)	1 Mar 62	Scout	S	U	
	Reentry II (B)	31 Aug 62	Scout	U	U	
	Reentry III (C)	20 Jul 63	Scout	U	U	
	Reentry IV (D)	18 Aug 64	Scout	S	S	
	Reentry V (E)	9 Feb 66	Scout	S	S	
	Reentry VI (F)	27 Apr 68	Scout	S	S	
	Fire I (Re-entry Test)	14 Apr 64	Atlas-X259	S	S	
	Fire II (Re-entry Test)	22 May 65	Atlas-X259	S	S	
	SERT-IA (Ion Engine Test)	20 Jul 64	Scout	S	S	
	RAM C-I (A) (Re-entry Test)	19 Oct 67	Scout	S	S	
	RAM C-II (B) (Re-entry Test)	22 Aug 68	Scout	S	S	
	RAM C-III (C) (Re-entry Test)	30 Sep 70	Scout	S	S	
	PAET (Re-entry Test)	20 Jun 71	Scout	S	S	
	TOTAL (Success/Attempts)			S	S	
	Orbital Flights					
	Explorer (S-55) (Micrometeoroids)	30 Jun 61	Scout	U	U	
	Explorer 13 (S-55A) (Micrometeoroids)	25 Aug 61	Scout	U	U	
	Explorer 16 (S-55B) (Micrometeoroids)	16 Dec 62	Scout	S	S	
	Explorer 23 (S-55C) (Micrometeoroids)	6 Nov 64	Scout	S	S	
	Pegasus I (A) (Micrometeoroids)	16 Feb 65	Saturn I (SA-9)	S	S	
	Pegasus II (B) (Micrometeoroids)	25 May 65	Saturn I (SA-8)	S	S	
	Pegasus III (C) (Micrometeoroids)	30 Jul 65	Saturn I (SA-10)	S	S	
	SERT-II (Ion Engine Test)	4 Feb 70	Thor-Agena	S	S	
	Explorer 46 (MTS) (Micrometeoroids)	13 Aug 72	Scout	S	U	
	TOTAL (Success/Attempts)			7/9	6/9	

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Soviet Spacecraft Designations

COSMOS: Cosmos appeared as a designator in 1962 to be used for explaining many different Soviet activities in space without giving specific details.

GORIZONT: Communications Satellite

EKRAN: Television Broadcasting Satellite

ELEKTRON: Satellites launched in pairs (with apogees of 4,000 miles and 40,000 miles) to map radiation belts.

INTERCOSMOS: Scientific satellites carrying experiments from other countries which make the payloads "international."

LUNA: Unmanned payloads launched to the Moon for lunar exploration. These include lunar orbiters, lunar landers, and lunar lander return missions.

MARS: Unmanned payloads launched to explore the planet Mars.

METEOR: Earth satellites primarily for collecting and reporting worldwide meteorological (weather) data. Early weather satellites were included in the Cosmos series.

MOLNIYA: A communications satellite appearing in a highly elliptical orbit over the same portion of the Earth each day on each of its climbs to apogee, giving good coverage to the Soviet Union.

OREOL: Scientific satellite intended to study physical phenomena in upper atmosphere and for studying the nature of the polar lights. Launched jointly with France.

POLYOT: Earth satellites incorporating onboard propulsion systems for changing orbits.

PROGNOZ: "FORECAST" - A solar irradiation and magnetosphere satellite for changing orbits.

PROGRESS: Cargo supply ship

RADIO: Amateur Radio Satellite

RADUGA: Geosynchronous Communications Satellite.

SALYUT: The first Earth orbiting space station for prolonged occupancy and revisitation by Cosmonauts.

SOYUZ: A manned spacecraft incorporating provisions for three Cosmonauts.

SPUTNIK: An early designation for Soviet unmanned orbiting payloads. These included scientific payloads and unmanned tests of the Vostok spacecraft.

VENUS (VENERA): Unmanned payloads launched to explore the planet Venus.

VOSKHOD: Adaptation of the Vostok capsule to accommodate two and three Cosmonauts. Vokhod I orbited three persons and Vokhod II orbited two persons performing the first manned extravehicular activity.

VOSTOK: The Soviet's first manned capsule, roughly spherical, used to place the first six Cosmonauts in Earth orbit.

ZOND: Lunar and deep space probes not otherwise designated. Includes circumlunar spacecraft.

Unofficial Tabulation Of USSR Spaceflights

	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	Total
1. Sputnik	2	1	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
2. Luna (Lunik)	-	-	3	-	-	-	2*	-	4	5	-	1	1	2	2	1	1	2	-	1	-	-	-	-	-	25
3. Vostok, Voskhod	-	-	-	-	2	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
4. Cosmos	-	-	-	-	-	12	12	27	52	34	61	64	55	72	81	72	85	74	85	101	86	96	79	88	94	1330
5. Venus (Venik)	-	-	-	-	-	3*	-	2	-	1	-	2	1	-	1	-	-	-	-	-	-	-	-	-	-	16
6. Mars	-	-	-	-	-	3*	-	-	-	-	-	-	-	-	2	-	4	-	-	-	-	-	-	-	-	9
7. Polyot	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
8. Electron	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
9. Zond	-	-	-	-	-	-	-	2	1	-	-	3	1	1	-	-	-	-	-	-	-	-	-	-	-	8
10. Molniya	-	-	-	-	-	-	-	-	2	2	3	3	2	5	3	6	8	7	10	7	6	6	5	4	8	87
11. Proton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
12. Soyuz (Union)	-	-	-	-	-	-	-	-	-	-	-	1	2	5	1	2	-	2	3	4	3	3	5	4	6	44
13. Meteor	-	-	-	-	-	-	-	-	-	-	-	-	2	4	4	3	2	5	4	3	4	-	3	2	2	38
14. Intercosmos	-	-	-	-	-	-	-	-	-	-	-	-	2	2	1	3	2	2	2	2	1	2	2	-	2	23
15. No Designation	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
16. Salyut-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2	-	1	1	-	-	-	-	6
17. Orel-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
18. PROGNOZ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	1	1	1	1	-	1	-	8
19. Launches for Other Countries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	6
20. Raduga	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	2	3	10
21. Ekran	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
22. Progress	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	3	4	1	12
23. Radio	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
24. Gorizont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	1	-	4
25. Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Total to Date	2	1	3	3	6	20	17	35	64	44	66	74	70	88	97	89	107	95	111	121	105	120	102	110	125	1675

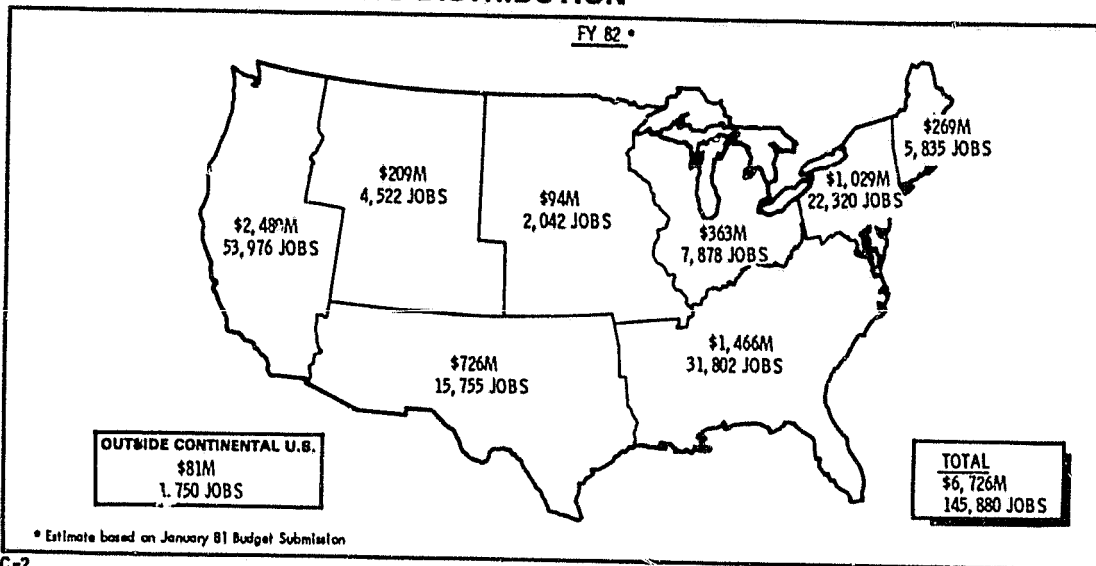
*Includes launches identified by the US but not announced by the USSR.
Source: Foreign Broadcasting Information Service

Section C

Funding, Manpower, & Facilities

C-1

NASA JOBS AND FUNDING DISTRIBUTION

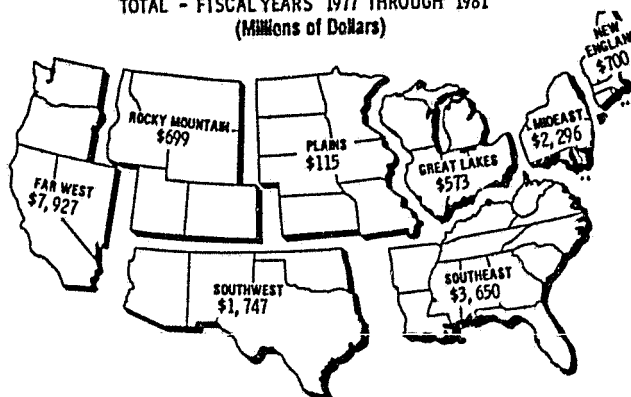


TOTAL EMPLOYMENT ON NASA PROGRAMS

	JUNE 1960	JUNE 1961	JUNE 1962	JUNE 1963	JUNE 1964	JUNE 1965	JUNE 1966	JUNE 1967	JUNE 1968	JUNE 1969	JUNE 1970
TOTAL EMPLOYMENT	48,788	74,577	137,658	246,304	379,084	409,900	393,924	306,926	267,871	218,345	167,803
CONTRACTOR EMPLOYMENT	36,500	57,500	115,500	218,400	347,100	376,700	360,000	273,200	235,400	186,600	136,580
NASA EMPLOYEES	10,288	17,077	22,158	27,904	31,984	33,200	33,924	33,726	32,471	31,745	31,223
	JUNE 1971	JUNE 1972	JUNE 1973	JUNE 1974	JUNE 1975	JUNE 1976	SEPT 1977	SEPT 1978	SEPT 1979	SEPT 1980	SEPT 1981
TOTAL EMPLOYMENT	149,609	144,968	134,055	125,054	127,733	132,039	124,069	124,569	131,931	135,613	133,792 (Estimated)
CONTRACTOR EMPLOYMENT	120,130	117,540	108,100	100,200	103,400	108,000	100,500	101,400	109,100	113,000	111,919 (Estimated)
NASA EMPLOYEES	29,479	27,428	25,955	24,854	24,333	24,039	23,569	23,169	22,831	22,613	21,873

U.S. GEOGRAPHICAL DISTRIBUTION OF NASA PRIME CONTRACT AWARDS*

TOTAL - FISCAL YEARS 1977 THROUGH 1981
(Millions of Dollars)



*Excludes smaller procurements, generally those of less than \$10,000; also excludes awards placed through other Government agencies, awards outside the U.S., and actions on the JPL contracts.

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NASA CONTRACT AWARDS BY STATE (FY 81)

STATE	PRIME CONTRACT AWARDS TO STATE		STATE	PRIME CONTRACT AWARDS TO STATE	
	AMOUNT	% OF TOTAL		AMOUNT	% OF TOTAL
TOTAL	\$4,386,333	100.0			
Alabama	94,017	2.1	Nebraska	309	*
Alaska	2,111	*	Nevada	1,101	*
Arizona	27,856	0.6	New Hampshire	2,924	0.1
Arkansas	315	*	New Jersey	41,313	0.9
California	1,875,403	42.8	New Mexico	18,132	0.4
Colorado	89,124	2.0	New York	56,319	1.3
Connecticut	112,886	2.6	North Carolina	4,133	0.1
Delaware	1,072	*	North Dakota	13	*
District of Columbia	19,760	0.5	Ohio	70,009	1.6
Florida	536,684	12.2	Oklahoma	1,936	*
Georgia	9,132	0.2	Oregon	4,222	0.1
Hawaii	3,420	0.1	Pennsylvania	105,714	2.4
Idaho	253	*	Rhode Island	1,148	*
Illinois	11,954	0.3	South Carolina	393	*
Indiana	18,430	0.4	South Dakota	80	*
Iowa	3,738	0.1	Tennessee	4,563	0.1
Kansas	3,886	0.1	Texas	384,300	8.8
Kentucky	689	*	Utah	85,352	1.9
Louisiana	205,845	4.7	Vermont	417	*
Maine	14	*	Virginia	124,481	2.8
Maryland	309,600	7.1	Washington	34,786	0.8
Massachusetts	56,409	1.3	West Virginia	34	*
Michigan	14,265	0.3	Wisconsin	5,726	0.1
Minnesota	6,547	0.1	Wyoming	248	*
Mississippi	30,770	0.7			
Missouri	6,938	0.2			
Montana	164	*			

*Less than .05 percent.

C-5

Financial Summary

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(In Millions of Dollars)			As of 30 Sep 81			
FISCAL YEAR	TOTAL APPROPRIATIONS	TOTAL DIRECT OBLIGATIONS	OUTLAYS			
			TOTAL	RESEARCH AND DEVELOPMENT R&D	CONSTRUCTION OF FACILITIES (CoR)	RESEARCH AND PROG. MGMT. (R&PM)
1959	330.9	298.7	145.5	34.0	24.8	86.7
1960	523.6	486.9	401.0	235.7	54.3	91.0
1961	966.7	908.3	744.3	487.0	98.2	159.1
1962	1,825.3	1,691.7	1,257.0	935.6	114.3	207.1
1963	3,674.1	3,448.4	2,552.4	2,308.4	225.3	18.7
1964	5,100.0	4,864.11	4,171.0	3,317.4	437.7	415.9
1965	5,250.0	5,500.7	5,092.9	3,984.5	530.9	577.5
1966	5,175.0	5,350.5	5,933.0	4,741.1	572.5	619.4
1967	4,968.0	5,011.7	5,425.7	4,487.2	288.6	649.9
1968	4,388.9	4,520.4	4,723.7	3,946.1	126.1	651.5
1969	3,995.3	4,045.2	4,251.7	3,530.2	65.3	656.2
1970	3,749.2	3,858.9	3,753.1	2,991.6	54.3	707.2
1971	3,312.6	3,324.0	3,381.9	2,630.4	43.7	707.8
1972	3,310.1	3,228.6	3,422.9	2,623.2	50.3	749.4
1973	3,407.6	3,154.0	3,315.2	2,541.4	44.7	729.1
1974	3,039.7	3,122.4	3,256.2	2,421.6	75.1	759.5
1975	3,231.2	3,265.9	3,266.5	2,420.4	85.3	760.8
1976	3,551.8	3,604.8	3,669.0	2,748.8	120.9	799.3
TQ	932.2	918.8	951.4	730.7	25.8	194.9
1977	3,819.1	3,858.1	3,945.3	2,980.7	105.0	859.6
1978	4,063.7	4,000.3	3,983.1	2,988.7	124.2	870.2
1979	4,561.2	4,557.5	4,196.5	3,130.8	132.7	925.0
1980	5,243.4	5,098.1	4,851.6	3,701.4	140.3	1,009.9
1981	5,522.7	5,606.2	5,421.2	4,223.0	146.8	1,051.4

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R&D Funding By Program

(In Millions of Dollars) As of 30 Sep 81	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977 & Prior
OSTS	1,994.7	1,870.3	1,637.6	1,348.8	4,600.3
Space Shuttle	236.6	206.3	215.8	208.8	3,827.5
Space Flight Operations	(44.3)	(20.7)	(31.6)	(26.9)	(32.6)
STS Operations Capability Dev	(183.5)	(172.6)	(177.2)	(171.9)	(1,050.3)
Development Test & Mission Sys	(6.8)	(13.0)	(7.0)	(10.0)	(99.3)
Advanced Programs	()	--	--	--	(2,428.4)
Skylab	()	--	--	--	(216.9)
Apollo Soyuz Test Project	()	--	--	--	89.7
Ad. Manned Missions	()	--	--	--	22,023.5
Completed Programs	()	--	--	--	(20,446.7)
Apollo	()	--	--	--	(1,281.0)
Gemini	()	--	--	--	(295.8)
Other Completed Programs	2,231.3	2,076.6	1,853.4	1,557.6	30,541.0
TOTAL OSTS					
OSTO	54.4	67.4	73.6	136.5	2,291.9
Expendable Launch Vehicles	439.6	240.3	83.9	55.0	32.8
Space Flight Operations	(260.4)	(148.1)	(25.6)	(16.5)	--
STS Operations	(175.2)	(92.2)	(58.3)	(38.5)	(32.8)
STS Operations Capability Dev	494.0	307.7	157.5	191.5	2,324.7
TOTAL OSTO					

R&D Funding By Program

ORIGINAL PAGE IS
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(In Millions of Dollars) As of 30 Sep 81					
	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977 & Prior
OSS					
Physics & Astronomy	320.0	335.0	268.8	211.9	2,175.7
Planetary Exploration	174.1	211.4	181.9	146.7	3,551.7
Life Sciences	42.2	43.8	40.1	33.3	145.6
Manned Space Sciences	--	--	--	--	46.4
Launch Vehicle Dev.	--	--	--	--	614.4
Bioscience	--	--	--	--	257.8
Space Applications	--	9.0	7.3	2.1	--
TOTAL OSS	536.3	607.8	498.1	394.0	6,781.6
OSTA					
Space Applications	325.7	319.5	264.6	230.0	2,095.1
Tech. Utilization	8.8	12.0	9.1	9.1	73.4
Physics and Astronomy	--	--	13.0	11.2	15.9
Space Flight Operations	--	--	--	4.0	58.3
Payload Planning & Program Integration	(-)	--	--	4.0	(58.3)
TOTAL OSTA	334.5	331.5	286.7	254.3	2,242.7
OSTDS					
Tracking & Data Acquisition	341.0	332.1	299.9	276.3	3,854.2
OCE					
Standards & Practices	2.1	3.8	9.0	9.0	24.2

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R&D Funding By Program

(In Millions of Dollars) As of 30 Sep 81

	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977 & Prior
OAST					
Current Programs					431.9
Space Research & Tech.	107.8	111.8	98.3	88.7	998.3
Aeronautical Research & Tech	208.8	308.3	284.1	228.0	20.1
Energy Tech. Applications	1.9	3.0	5.0	7.5	
Prior Programs					1.0
Apollo Applications Expr.					62.3
Chemical & Solar Power					193.0
Basic Research					332.4
Space Vehicle Systems					372.0
Electronics Systems					181.4
Human Factor Systems					385.5
Space Power & Elec. Prop. Sys					312.9
Nuclear Rockets					369.4
Chemical Propulsion					451.5
Aeronautical Vehicles					44.2
Nuclear Power & Propulsion					18.0
Mission Analysis					4,330.2
TOTAL OAST	378.5	423.1	367.4	324.2	
OPERATING ACCOUNT	17.8	5.5	5.2	4.7	67.1
UNIVERSITY AFFAIRS					229.2
TOTAL PROGRAM	4,335.5	4,088.1*	3,477.2**	3,011.5***	50,314.1
Approp. Trans. & Adjustment	4.8	73.7	11.4	51.4	305.1
Appropriation	4,336.3	4,091.1*	3,477.2**	3,013.0***	50,619.2

*includes .1 unobligated balance which lapsed 9-30-81.
**includes .3 unobligated balance which lapsed 9-30-80.
***includes .3 unobligated balance which lapsed 9-30-79.

ORIGINAL PAGE IS
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R&D Funding By Location

(In Millions of Dollars)

As of 30 Sep 81

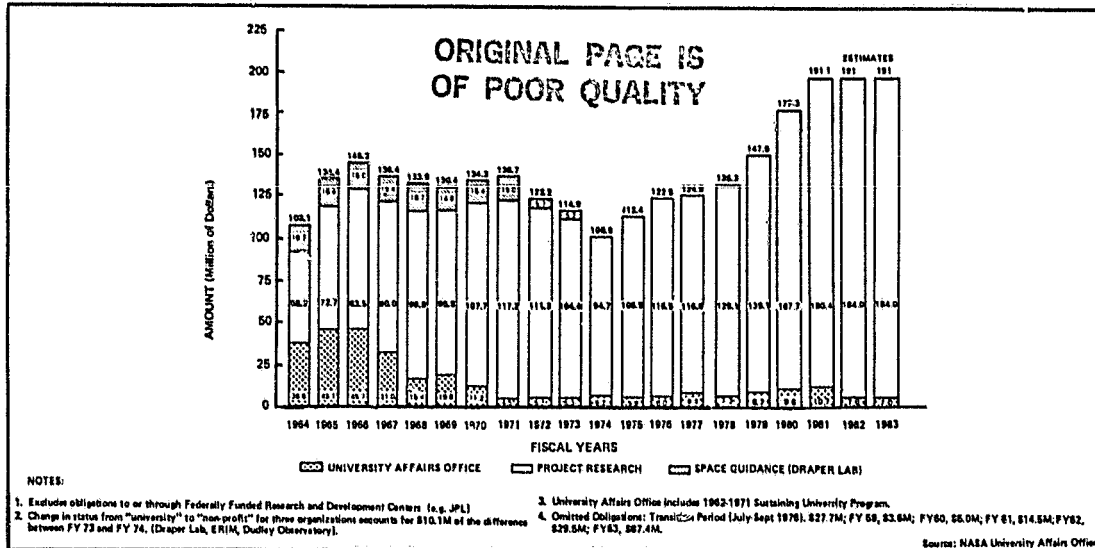
	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977 & Prior
INSTALLATION					
NASA Headquarters	136.4	132.5	115.3	95.0	2,242.4
Ames Research Center	139.7	147.5	140.4	115.5	1,176.3
Electronics Research Center	—	—	—	—	82.5
Dryden Flight Research Center	18.4	16.6	13.1	18.6	242.7
Goddard Space Flight Center	656.9	550.9	515.5	492.9	6,395.6
Jet Propulsion Laboratory	245.2	320.5	236.8	291.4	3,018.0
Kennedy Space Center	357.8	300.6	234.9	170.0	2,514.8
Langley Research Center	142.3	168.2	138.2	157.1	2,329.3
Lewis Research Center	154.9	170.4	148.5	133.6	2,854.3
Johnson Space Center	1,508.6	1,398.3	1,161.8	970.7	15,427.6
Marshall Space Flight Center	982.0	888.2	785.2	635.9	13,282.3
Space Nuclear Systems Office	—	—	—	—	436.2
Wallops Flight Center	19.6	16.8	17.1	15.9	156.6
Western Support Office	—	—	—	—	119.7
National Space Technology Labs.	8.7	9.3	9.2	10.0	20.8
NaPO	—	—	—	—	4.7
PLCO	—	—	—	—	.3
Station 17	-14.0	-31.7	-38.8	—	—
Undistributed	76.9	—	—	—	.1
TOTAL PROGRAM	4,335.5	4,088.1*	3,477.2**	3,011.6***	50,314.1
Appropriations Transfer & Adjustments	+8	+3.0	—	+1.4	305.1
Appropriation & Availability Total	4,336.3	4,091.1*	3,477.2**	3,013.0***	50,619.2

*Includes .1 unobligated balance which lapsed 9-30-81.

**Includes .3 unobligated balance which lapsed 9-30-80.

***Includes .3 unobligated balance which lapsed 9-30-79.

NASA OBLIGATIONS TO UNIVERSITIES



ORIGINAL PAGE IS
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Construction Of Facilities

(In Millions of Dollars)							As of 30 Sep 81					
INSTALLATION	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977	TQ	FY 1976	FY 1975	FY 1974	FY 1973	FY 1972	FY 1971
Ames Research Center	13.9	2.9	9.3	--	4.5	--	2.7	3.7	--	3.2	6.5	1.1
Electronics Research Center	--	--	--	--	--	--	--	--	--	--	--	--
Dryden Flight Research Center	--	--	--	4	.6	--	--	--	--	--	--	--
Goddard Space Flight Center	--	--	5.6	4.5	--	--	--	1.9	1.4	.6	.7	1.4
Jet Propulsion Laboratory	3.5	--	4.6	3.1	--	--	--	5.2	1.3	.5	--	1.9
Kennedy Space Center	.8	5.7	--	1.7	2.8	--	--	--	--	10.0	15.6	.3
Langley Research Center	20.7	7.9	5.9	1.7	6.1	--	1.6	3.9	4.0	4.3	--	.5
Lewis Research Center	10.4	5.7	6.0	.8	2.9	--	--	3	--	9.7	.8	.7
Johnson Space Center	--	--	--	2.2	2.2	--	--	--	--	.6	--	4.1
Marshall Space Flight Center	4.6	6.6	--	--	--	--	--	3.4	--	--	--	1.3
Michoud Assembly Facility	--	--	--	--	--	--	--	--	--	--	--	--
National Space Technologies Lab	--	--	--	.6	--	--	--	--	--	--	--	--
Nuclear Rocket Dev. Station	--	--	--	--	--	--	--	--	--	--	--	--
Pacific Launch Operations	--	--	--	--	--	--	--	--	--	--	--	--
Wallops Flight Center	--	1.1	--	--	--	--	1.0	1.1	.8	.6	--	--
Large Aeronautical Facilities	--	45.9	56.1	37.0	31.0	--	--	--	--	--	--	--
Various Locations	2.2	1.8	--	1.4	--	--	--	7.7	3.7	--	.7	22.5
Space Shuttle Facilities	10.1	27.8	31.1	64.0	20.7	--	46.7	77.4	56.8	27.0	18.5	--
Space Shuttle Payload Facilities	1.6	4.4	--	7.5	4.4	--	--	--	--	--	--	--
Repair	15.0	12.0	--	--	--	--	--	--	--	--	--	--
Rehabilitation & Modification*	19.0	19.8	14.1	16.9	17.8	7.0	15.9	14.8	14.8	11.6	7.0	(1.9)
Minor Construction	4.0	3.5	4.2	5.9	2.9	--	1.2	5.0	4.5	1.7	--	--
Facility Planning & Design	10.0	14.0	10.6	11.7	12.6	2.5	9.9	10.8	13.5	7.8	3.5	6.5
Unallocated Planning & Design	--	--	--	--	--	--	--	--	--	--	--	2.4
TOTAL PLAN	115.8	158.1	147.5	162.3	118.7	10.7	82.8	142.5	100.8	78.5	54.2	38.8
Approp. Trans. & Adj.	-8	-3.0	--	-1.4	-6	1.1	-7	-2.3	-3	-1.2	-1.5	-13.8
Approp. & Availability	115.0	156.1	147.5	160.9	118.1	10.8	82.1	140.2	101.1	77.3	52.7	25.0

*Included in Various Locations Prior to FY 1972

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Construction Of Facilities

As of 30 Sep 81

(In Millions of Dollars)

INSTALLATION	FY 1970	FY 1969	FY 1968	FY 1967	FY 1966	FY 1965	FY 1964	FY 1963	FY 1962	FY 1961	FY 1960	FY 1959
Ames Research Center	.3	.4	4.2	--	2.8	5.8	11.3	14.3	6.3	.6	6.1	3.8
Electronics Research Center	--	--	--	7.4	5.2	10.4	1.6	--	--	--	--	--
Dryden Flight Research Ctr.	.9	--	--	--	--	--	2.5	1.8	--	--	1.8	--
Goddard Space Flight Center	.7	--	.6	.7	2.4	2.3	17.7	21.3	11.5	9.4	14.0	3.9
Jet Propulsion Laboratory	--	--	3.1	.3	.9	3.6	3.0	11.4	3.6	8.6	7.7	--
Kennedy Space Center	10.5	7.4	20.4	34.6	7.2	87.8	273.4	332.8	115.6	27.8	4.0	--
Langley Research Center	5.6	--	--	6.4	8.4	3.3	9.7	9.8	6.9	12.3	4.5	10.8
Lewis Research Center	.3	--	2.1	16.2	.9	.8	20.4	45.5	1.1	9.6	6.6	8.0
Johnson Space Center	--	1.0	.6	11.8	4.0	17.3	33.9	24.5	--	--	--	--
Marshall Space Flight Center	--	--	.9	--	1.8	12.0	28.2	40.5	30.7	26.1	--	--
Michoud Assembly Facility	--	.4	.5	.5	.3	6.2	7.3	28.5	--	--	--	--
National Space Tech Lab	1.5	--	--	--	--	58.4	102.9	77.1	--	--	--	--
Nuclear Rocket Dev. Station	--	--	--	--	--	--	4.1	11.5	--	--	--	--
Pacific Launch Ops. Office	--	--	--	--	--	.3	--	--	.6	.4	1.1	--
Wallops Flight Center	.6	.5	.7	.2	1.0	1.7	.5	4.1	11.3	2.0	--	16.1
Various Locations	26.4	20.9	3.5	6.5	15.1	28.3	187.8	129.9	159.0	28.0	52.4	5.1
Facility Planning & Design	3.5	.9	5.4	5.5	5.0	8.8	10.4	12.9	9.8	--	--	--
Unallocated or Undistributed	.5	--	--	--	--	--	23.7	--	--	--	--	--
TOTAL PROGRAM PLAN	50.6	31.5	42.0	90.1	55.0	247.0	738.4	765.9	356.4	124.8	98.2	47.7
Appro. Trans. & Adj.	42.6	-9.7	-6.1	-7.1	+5.0	+15.9	-58.4	+10.3	-40.4	-2.0	-13.6	+ .3
Appro. & Availability	53.2	21.8	35.9	83.0	60.0	262.9	680.0	776.2	316.0	122.8	84.6	48.0

Research And Program Management

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(In Millions of Dollars)

As of 30 Sep 81

INSTALLATION	FY 1981	FY 1980	FY 1979	FY 1978	FY 1977	TQ	FY 1976	FY 1975	FY 1974	FY 1973	FY 1972	FY 1971	FY 1970
NASA Headquarters 1/	96.4	89.5	84.5	81.1	78.7	20.3	68.2	68.9	63.0	61.6	61.6	64.9	63.2
Ames Research Center	72.2	67.4	62.7	57.8	53.0	13.3	50.9	48.6	46.4	42.4	42.2	40.6	37.6
Electronics Research Center	--	--	--	--	--	--	--	--	--	--	--	--	19.1 3/
Dryden Flight Research Center	22.6	20.4	19.1	18.2	17.3	5.3	14.5	13.2	12.2	11.6	11.7	11.1	10.3
Goddard Space Flight Center	142.5	133.5	127.9	123.9	114.5	28.6	108.6	104.8	97.5	95.7	96.5	93.1	86.4
Kennedy Space Center	150.2	133.2	123.3	113.8	109.7	28.6	99.8	95.9	93.6	91.1	92.6	98.3	97.6
Langley Research Center	120.8	114.0	106.6	102.0	95.2	24.2	93.1	88.6	83.8	78.6	80.2	75.3	69.8
Lewis Research Center	99.9	94.8	87.5	84.9	83.6	22.2	80.7	80.3	79.8	81.2	82.5	78.0	73.9
Johnson Space Center	176.0	164.1	152.9	146.7	138.9	37.5	128.8	121.3	118.0	110.6	113.0	111.1	106.6
Marshall Space Flight Center	165.0	155.9	149.0	143.4	138.5	34.7	132.8	129.1	136.6	137.2	138.9	145.1	125.7
National Space Tech Lab	5.5	4.9	4.5	2.7	1.8	.5	1.8	1.6	1.6	--	--	--	--
Pacific Launch Operations	--	--	--	--	--	--	--	--	--	--	--	--	--
Space Nuclear Systems Office	--	--	--	--	--	--	--	--	--	--	--	--	--
Western Support Office	--	--	--	--	--	--	--	--	--	1.1	2.2	2.4	1.3
Wallops Flight Center	20.0	17.7	15.8	15.0	13.2	4.0	13.1	12.4	11.5	10.7	10.9	10.3	9.7
TOTAL PROGRAM PLAN	1,071.1	996.0	933.8	889.5	844.4	220.2	792.3	764.7	744.0	721.8	732.3	730.2 2/	702.2
Unobligated Balance Lapsing	.3	.2	.3	.3	.2	.6	--	.2	.6	7.6	.3	.2	.4
Appro. Transfers, Net	--	--	--	--	--	--	--	--	--	--	--	--	--
Appropriation Total	1,071.4	996.2	934.1	889.8	844.6	220.8	792.3	765.0	744.6	729.4	734.7	722.7	690.0

1/ Includes NaPO
2/ Includes \$10 million for basic institutional and other requirements for agencies resident at MTF/Slidell.
3/ ERC was closed on June 30, 1970.

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Research And Program Management

As of 30 Sep 81											
(In Millions of Dollars)											
INSTALLATION	FY 1969	FY 1968	FY 1967	FY 1966	FY 1965	FY 1964	FY 1963	FY 1962	FY 1961	FY 1960	FY 1959
NASA Headquarters 1/	60.8	57.1	57.4	54.4	69.3	47.1	51.3	26.0	13.9	8.5	5.7
Ames Research Center	34.0	33.8	33.8	33.2	31.8	29.9	25.6	22.9	19.9	17.8	16.3
Electronics Research Center	17.2	15.4	12.2	6.4	3.2	.5	--	--	--	--	--
Dryden Flight Research Center	9.7	9.5	9.5	9.4	10.5	9.4	7.5	7.2	5.1	4.3	3.3
Goddard Space Flight Center	73.2	68.3	71.1	64.4	93.3	61.9	32.8	39.1	20.4	15.5	1.8
Kennedy Space Center	95.8	93.1	92.7	82.0	40.8	29.8	18.8	6.4	--	--	--
Langley Research Center	63.0	62.2	64.3	63.5	59.0	52.1	51.8	46.6	39.1	33.0	31.4
Lewis Research Center	67.9	66.2	66.3	66.4	69.3	61.5	53.4	45.2	35.8	31.2	27.8
Johnson Space Center	98.9	93.7	95.7	86.5	88.7	64.7	51.0	24.1	9.2	--	--
Marshall Space Flight Center	116.3	126.2	128.7	128.4	138.7	124.3	112.6	89.2	68.6	5.1	--
Pacific Launch Operations	--	--	--	.6	.9	.9	.6	.1	--	--	--
Space Nuclear Systems Office	2.1	2.0	2.0	1.8	1.7	1.5	1.0	.3	--	--	--
Western Support Office	--	1.0	3.2	4.9	5.0	4.4	3.4	1.4	5.7	.5	--
Wallops Flight Center	9.1	8.8	9.7	9.3	11.1	8.8	8.9	7.1	5.0	2.7	1.3
TOTAL PROGRAM PLAN	648.0	639.3	646.6	611.2	623.3	496.6	438.7	315.6	222.7	118.6	87.6
Unobligated Balance Lapping	.1	.1	.9	.6	.2	2.8	--	--	--	--	--
Appro. Transfers, Net	- 44.9	- 11.4	- 7.5	- 27.8	- 2.5	- 494.0	--	--	--	--	--
Appropriation Total	603.2	628.0	640.0	584.0	620.8	--	--	--	--	--	--

1/ Includes NaPO

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Personnel Summary

Onboard At End Of Fiscal Year*												As of 30 Sep 81
INSTALLATION	FY 81	FY 80	FY 79	FY 78	FY 77	FY 76	FY 75	FY 74	FY 73	FY 72	FY 71	FY 70
NASA Headquarters	1,658	1,658	1,534	1,606	1,619	1,708	1,673	1,734	1,747	1,755	1,894	2,187
Ames Research Center	1,652	1,713	1,713	1,691	1,645	1,724	1,754	1,776	1,740	1,844	1,968	2,033
Dryden Flight Research Center	491	499	498	514	546	566	544	531	509	539	579	583
Goddard Space Flight Center	3,431	3,535	3,562	3,641	3,666	3,800	3,871	3,936	3,852	4,178	4,459	4,487
Kennedy Space Center	2,224	2,291	2,264	2,234	2,270	2,404	2,377	2,408	2,516	2,568	2,704	2,895
Langley Research Center	3,028	3,094	3,125	3,167	3,207	3,407	3,472	3,504	3,389	3,592	3,830	3,970
Lewis Research Center	2,782	2,901	2,907	2,964	3,061	3,168	3,181	3,172	3,368	3,866	4,083	4,240
Johnson Space Center	3,498	3,616	3,563	3,617	3,640	3,756	3,877	3,886	3,896	3,935	4,298	4,339
Marshall Space Flight Center	3,479	3,646	3,677	3,808	4,014	4,326	4,337	4,574	5,287	5,555	6,060	6,325
Space Nuclear Systems Office	--	--	--	--	--	--	--	--	--	45	89	103
NASA Pasadena Office (NaPO)	--	--	--	--	--	--	35	39	39	40	44	72
Wallops Flight Center	400	406	409	429	426	437	441	447	434	465	497	522
National Space Technology Lab	113	111	100	108	94	72	76	--	--	--	--	--
NASA TOTAL	22,736	23,470	23,360	23,779	24,188	25,426	25,638	26,007	26,777	28,382	30,506	32,548

*Includes Temporary Personnel
Excludes employees in the youth programs.

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Personnel Summary

Onboard At End Of Fiscal Year*

INSTALLATION	FY 1969	FY 1968	FY 1967	FY 1966	FY 1965	FY 1964	FY 1963	FY 1962	FY 1961	FY 1960	FY 1959
NASA Headquarters	2,293	2,310	2,373	2,336	2,135	2,158	2,001	1,477	735	587	492
Ames Research Center	2,117	2,197	2,264	2,310	2,270	2,204	2,116	1,658	1,471	1,421	1,464
Electronics Res. Center	951	950	791	555	250	33	25	---	---	---	---
Dryden Flt Research Ctr	601	622	642	662	669	619	616	538	447	408	340
Goddard Sp. Flt. Ctr.	4,295	4,073	3,997	3,958	3,774	3,675	3,487	2,755	1,599	1,255	398
Kennedy Space Center	3,058	3,044	2,867	2,669	2,464	1,625	1,181	359	---	---	---
Langley Research Ctr.	4,087	4,219	4,405	4,485	4,371	4,330	4,220	3,894	3,33	3,203	3,621
Lewis Research Center	4,399	4,583	4,956	5,047	4,897	4,859	4,697	3,800	2,773	2,722	2,80
Johnson Space Center	4,751	4,956	5,064	4,889	4,413	4,277	3,345	1,786	794	In GSFC	---
Marshall Sp. Flt. Center	6,639	6,935	7,602	7,740	7,719	7,679	7,332	6,843	5,948	370	---
Pacific Launch Ops.	---	---	---	d/	21	22	17	---	---	---	---
Space Nuclear Sys. Ofc.	104	108	113	115	116	112	96	39	4	---	---
Western Support Ofc.	---	---	119	294	377	376	308	136	60	37	---
NASA Pasadena Ofc.	80	79	91	85	19	9/	---	---	---	---	---
Wallops Station	554	565	576	563	554	530	493	421	302	229	171
NASA TOTAL	33,929	34,241	35,850	35,708	34,049	32,499	29,934	23,685	17,471	10,232	9,235

*/ Prior years figures included in WSO. * Includes Temporary Personnel

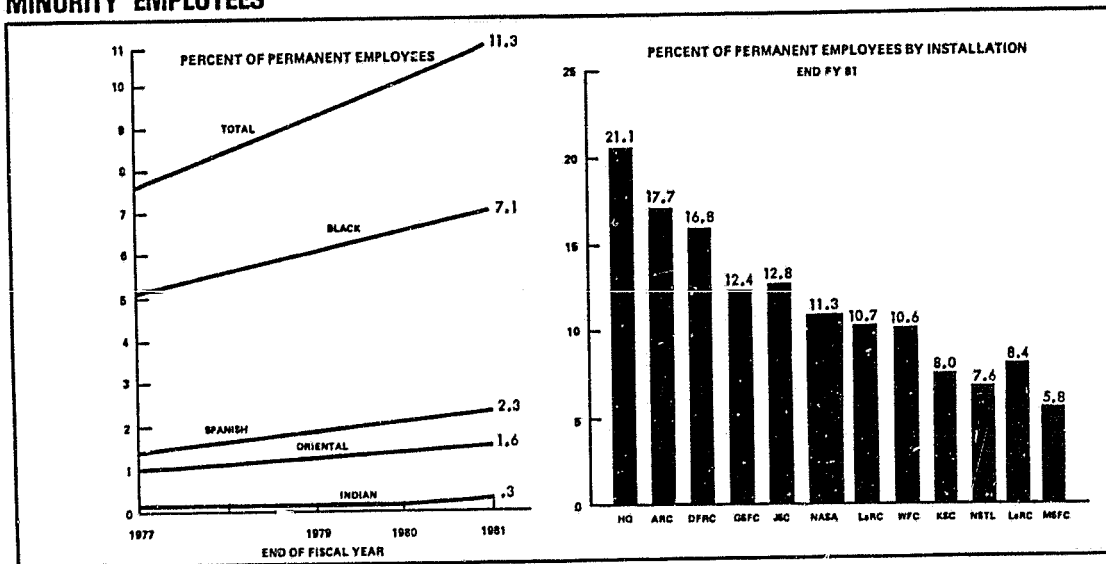
*/ Figures for North Eastern Office.

*/ Effective in 1968 WSO was disestablished and elements merged with NaPO

*/ Effective in 1966 PLOO activity was merged under KSC.

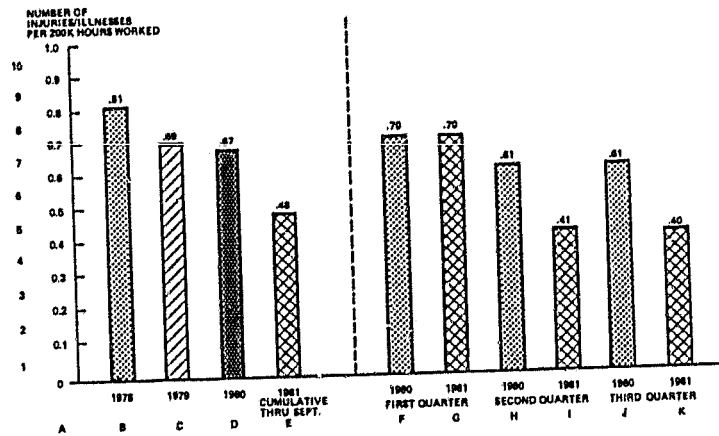
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MINORITY EMPLOYEES

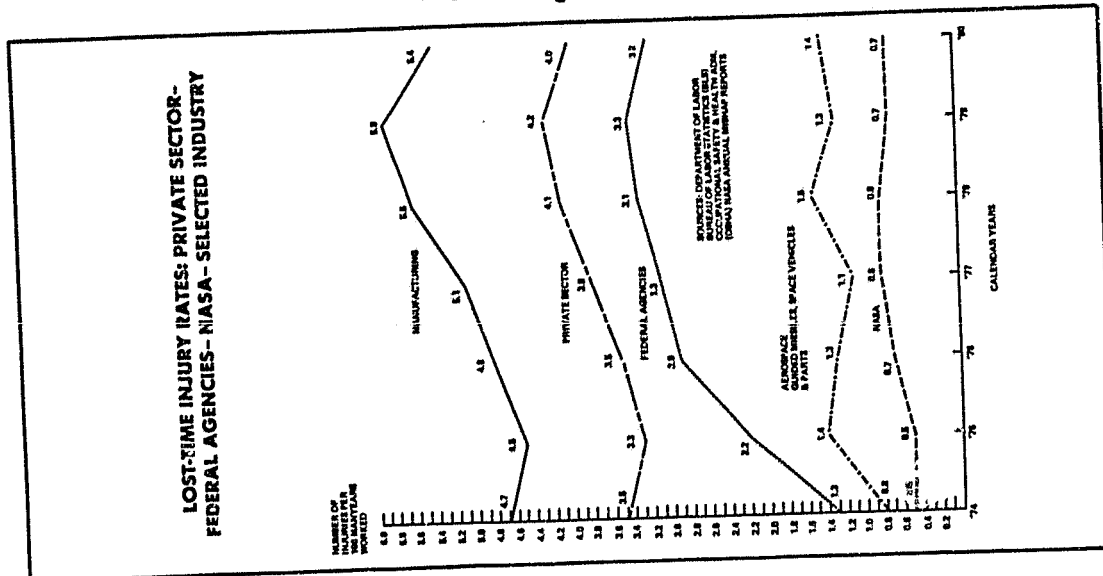


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NASA LOST TIME INJURY/ILLNESS RATES - YEARLY AND QUARTERLY COMPARISON



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GLOSSARY

AD	Atmosphere Dynamics	IUE	International Ultraviolet Explorer
AE	Atmosphere Explorer	Landsat	Earth Resources Satellite
AEM	Applications Explorer Mission	MAGSAT	Magnetic Satellite
Apollo	Three-man Spacecraft	Mercury	One-man Spacecraft
ATS	Applications Technology Satellite	Nimbus	Meteorological Satellite
BSE	Broadcasting Satellite Experimental	NOAA	National Oceanic & Atmospheric Agency
COS	Cosmic Ray Satellite	OT	Orbital Test Satellite
CRL	Cambridge Research Lab	OTS	Orbiting Test Satellite
CS	Communications Satellite	RAE	Radio Explorer
CTS	Communications Test Satellite	Ranger	Lunar Probe Spacecraft
DE	Dynamic Explorer	RFD	Re-entry Flight Demonstration
ERTS	Earth Resources Technology Satellite	SAGE	Stratospheric Aerosol Gas Experiment
ESA	European Space Agency	SAS	Small Astronomy Satellite
ESRO	European Space Research Organization	SBS	Satellite Business Systems
ESSA	Environmental Science Services Agency	SCATHA	Spacecraft Charging at High Altitudes
Gemini	Two-man Spacecraft	Seosat	Ocean Research Satellite
GEOS	Geostatic Earth Observations Satellite	SME	Solar Mesosphere Explorer
GMS	Geostationary Meteorological Satellite	SMM	Solar Maximum Mission
GOES	Geostationary Operational Environmental Satellite	SMS	Synchronous Meteorological Satellite
HCMM	Heat Capacity Mapping Mission	Surveyor	Lunar Soft Landing Spacecraft
HEAO	High Energy Astronomy Observatory	Syncom	Synchronous Communications Satellite
IMP	Interplanetary Monitoring Platform	Tiras	Television Infrared Observation Satellite
IRAS	Infrared Astronomical Satellite	TOS	Tiros Operational Satellite
ISEE	International Sun-Earth Explorer		
ITOS	Improved Tiros Operational Satellite		